

Official Journal of the National Brotherhood Electrical Workers of America.

Vol. 5. No. 4.

ST. LOUIS, MAY, 1896.

SINGLE COPIES, 10 CENTS.
\$1.00 PER YEAR, IN ADVANCE.

Niagara Model for the Electrical Exposition.

One of the attractions to be seen at the forthcoming electrical exposition to be held in New York City will be a beautiful model of Niagara in miniature. This model is a remarkably pretty piece of work and has been displayed in the map room of the Cataract House at Niagara Falls, where it was operated by water power, but while on exhibition in New York it is intended to operate it by electricity from Niagara Falls, a distance of nearly 500 miles. To accomplish this it is intended to use a telegraph wire of the Western Union Co. The electric power is to be taken from the big 5000-horse-power generators in the central station of the Niagara Falls Power Co., and if the effort proves a success, it will be most significant of the possibilities of heavier cables, which will be erected at a future date, to carry large quantities of Niagara's energy across the Empire State.

The model shows the city of Niagara Falls and surrounding locality from a point just beyond the line of the power tunnel on the north to the center of Goat Island on the south, and from a point beyond the Clifton House, Canadian side, on the west, to a point beyond the big tunnel canal on the east. The model is 12 feet long by 3 feet 6 inches wide. The scale upon which the model was made is about 100 feet to every inch and a half. The streets and buildings in the city are in perfect form and it is like standing high above the city to enjoy a look at the pretty work. The eyes do not tire, but as they search about and pick out the various buildings the pleasure is a novel one. In all 197 buildings are shown and the number of trees which beautify the streets of the city in the model is 1,150.

While on exhibition the model will stand so that the points of the compass will be

retained with accuracy. Standing in front of it, the visitor learns by a statement on a metal plate that he is looking at a model of the Niagara Power Company's plant at Niagara Falls, N. Y., and such it is. The power-house, wheel-pits, cross sections of the canal, turbine wheels and the tunnel are all before him. In this is found the actuating thought that led to the construction of this truly wonderful piece of work. Day after day many visitors at the Falls make eager inquiries as to the workings



F. J. ROTH,
FIRST GRAND VICE-PRESIDENT.

of the tunnel and its object. Some find this a difficult matter to explain, but here all is clearly presented. In this model is shown what can be seen in no other way, for it would be utterly impossible to take all the visitors down into the deep wheel-pit to show them the working of the turbines. When a nickel is dropped into the slot, water will flow down the penstocks upon the turbines which will set in motion the turbine shaft to the dynamo that will generate the power. Above is shown the

dynamos with a small flight of stairs leading to the top of them. The front view of the model gives a glimpse of the Niagara Falls Power Company's plant in miniature. There is also a sectional view showing the turbines, penstocks and shafts. The first glance at this part of the model is quite deceiving. The visitor gains the idea that he sees four turbines on each side, but the fact is there are two on each side and the others are reflected by a mirror neatly concealed in the back. As the water passes from the turbines it enters a drift or small tunnel leading to the main tunnel and is carried through it to the gorge below. Standing on the north side of the model a sectional view of the entire length of the tunnel and the water passing through it is obtained. Air bubbles are pumped into the water so as to make it more perceptible to the sight. From the west side of the portal of the tunnel, a view of the gorge, the American Fall, and a portion of the lower river is obtained. The steamer "Maid of the Mist," is near the American dock. The arrangement of the American Fall and the little fall between Luna Island and Goat Island is most perfect. If a nickel is dropped in the slot on the north side, six electric lights located in various parts of the city and three lights in the Cataract House shine forth and add to the scene. These lights will be operated from the current transmitted from the Niagara power plant. One thing that all will be impressed with is the beauty of the river as it is represented. The upper river is shown from the Falls to a point where the tunnel canal taps the river. All the islands and bridges are shown. The river bed on the part above the rapids is of glass. Midway down the south side of the model the glass ends. To this point the water flows underneath the glass, when it runs out and flows over a bed of lead representing rock.

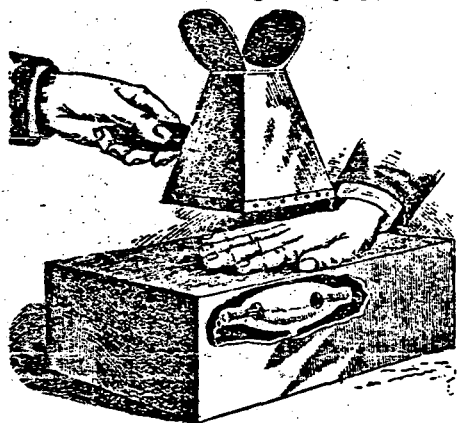
Where the rapids are the lead is wavy and the rapids are shown distinctly. As the water passes over the precipice it drops behind rocks at the bottom and passes underneath the glass river bed of the gorge.

The model was made by Geo. R. Allen, of Philadelphia, and that part of it that treats of the power development was made under the supervision of Coleman Sellers, chairman of the Board of Engineers of the Cataract Construction Co.

ORRIN E. DUNLAP.

Edison Fluoroscope.

After much exhaustive experimenting Thos. A. Edison has developed a device which promises to be of very great value to the medical profession, especially to surgeons, to which he has given the name **Fluoroscope**. It consists of a light-tight pasteboard box, painted black inside with tapering sides, and a square, flat end. At the smaller end is a leather piece edged with black braid. This leather piece is so shaped that when held to the face the eyes are free to look into the box towards the large end, and all light is excluded. The box is about a foot long and equipped with



a handle and also with a strap which can be fastened around the head and thus hold it tightly to the eyes in case the operator desires the use of both hands. The flat end of the box is about six inches square. The interior face of this end is coated with crystals of calcium tungstate in the following manner: The pasteboard is first covered with white paper which is afterwards coated with collodion; fine crystals of calcium tungstate are sifted on the collodion and then the coarser ones, until the surface is smoothly and completely covered with a thin coating of the crystals. The end is then attached to the box. By holding a human hand between the fluoroscope and a Crookes tube and looking through the opening for the eyes, the bones of the hand may be distinctly seen. The fluorescence of the calcium tungstate apparently changes the rays from the Crookes tube into ordinary light after they have passed through the hand, thus making the bones visible to the human eye.

The accompanying illustration gives a clear idea of the apparatus. A Crookes tube is placed in a wooden box about eight inches square and one and a half feet in

length. The hand or object that is to be examined is laid directly upon the box over the tube, and the observer puts the fluoroscope to his eyes and looks down. If X rays are being emitted from the tube, the tungstate crystals fluoresce and the observer can plainly see the shadow of, for example, the hand, bones and joints becoming quite clearly and distinctly outlined. If the hand is moved, the action is perfectly visible, while if a coin or piece of metal is placed on a box, this is clearly shadowed upon the screen.

Mr. Edison experimented with over 1,800 different salts in making his experiments. When asked if he had formed any idea of the nature of the X ray, he replied: "Not even a remote idea. Don't know a thing about it. Why, look here. We have been working with ordinary light for 300 years and see how little we know about it. We have been working hard on electricity for 100 years and know nothing about it. How are we going to know anything about the X rays after only six weeks' work?"

Municipal Plant for Riverside, Cal.

The California Electrical Works, San Francisco, have received the contract for the municipal lighting plant for the city of Riverside. They expect to commence construction about May 10th. The contract is for a transmission plant of twenty-one miles, the power plant being located on Mill Creek, eight miles from Redlands, in San Bernardino County, and the city of Riverside rents its power from the Redlands' Electric Light & Power Co., paying \$3.00 per month per horse-power delivered at the sub-station at Riverside.

The Redlands' Electric Light & Power Co. have had their generators installed for nearly two years, but at the generating station will now be placed three 100-kilowatt step-up transformers to raise the potential from 2,500 to 11,000 volts. There will be also a marble switchboard for 10,000 volts placed in the power station. The transmission line will be constructed of 30-foot round cedar poles, six-inch tips. Insulators will be the Locke porcelain triple petticoat, guaranteed to stand 20,000 volts. The pins will be Locke indestructible steel pins. Crossarms will be braced with iron braces throughout and the size of the wire will be No. 4 B. & S. bare copper.

In the sub-station at Riverside the California Electrical Works will place a 10,000 volt switchboard and three step-down transformers to step down from 10,000 to 2,000 volts, having a capacity of 2,500 kilowatts. The distributing switchboard will also be located in the sub-station and there will be three 3-wire circuits to operate the incandescent, and three 3-wire arc circuits to operate the arc lamps, run from this board. The board will be constructed of marble and iron, and Whitney instruments will be used throughout. There will be 100 Helios alternating lamps used, ninety for street and ten for interior lighting. The

town will be wired for about 1,000 incandescent lights for commercial purposes. The transformers will be of the Waguer type.

Edison's Vitascope.

This is the name Edison has given to his latest achievement. It is an improvement on the kinetoscope and instead of looking into the machine to see the movements of the figures, the vitascope throws on a screen, by means of bright lights and powerful lenses, moving life-size figures of human beings and animals. The film roll on which the photographs are attached is arranged over a half dozen spools and pulleys and when the machine is set in motion the dancer's image appears upon a screen on the stage as if in life. The original photographs, as taken by the kinetoscope as developed on the roll are about the size of a special delivery postage stamp, and to produce a picture life-size are magnified about 600 times.

A correspondent of the *St. Louis Republic* gives the following description of the first public exhibition of the vitascope in New York:

"Edison's vitascope is a thing of beauty and a joy forever. It is the most wonderful device of the year and one that is destined to become popular in every amusement hall in the country. The vitascope, roughly speaking, is an elaboration of the kinetoscope. But that does not adequately describe the machine, which is almost human in its gyrations and color effects.

"As I witnessed the first public exhibition of the vitascope on Thursday evening, the apparatus was arranged in two adjoining boxes in the gallery of Koster & Bial's music hall, facing the stage. The device resembled a turret with guns projecting from two oblong holes on the stage side. When the operator got down to business, however, the appearance of the vitascope to the eye did not count. Those gaping tubes were perfectly harmless and were trained upon a canvas on the stage, which was framed to resemble a picture. When the theater had been darkened, the operator set the machinery in motion and life-size pictures were thrown upon the canvas, and they were so real in color and motion that it was hard to believe that it was all an optical illusion. First came a vivid picture of the Leigh sisters in their umbrella dance; then the march from Charles Hoyt's 'Milk White Flag,' a skirt dance, with a prismatic display of color effects; an animated argument over the Monroe doctrine between Uncle Sam and Mr. Bull. The most realistic picture, however, was a bit of scenery from the Jersey beach during a storm, with the breakers curling and dashing on the pebbles and great sweeping ground swells in the background. The combers were so true to life that one felt like stepping back, as they broke on the beach, to avoid a ducking. When it is understood that the 'Wizard' has combined with the vitascope the essential features of the phonograph, some idea may be had of the beauty and charm of the latest Edison invention. The little machine is designed for use all over the world and more especially in those communities which by reason of their size and isolation are deprived of the delights of grand opera and the best things in the amusement calendar."

"I rejoice at every effort workmen make to organize—I hail the labor movement. It is my only hope for democracy. Organize, and stand together. Let the Nation hear a united demand from the laboring voices."—Wendell Phillips.

The New Three-Phase Electric Lighting System at Salt Lake City.

In August, 1895 it became necessary to make immediate provision to increase the dynamo capacity in Salt Lake City, in order to meet the demand for lighting. A contract has been made with the Big Cottonwood Power Company for the supply of power, but there was no prospect of getting this power until the spring of 1896. By this contract the Big Cottonwood Power Company have undertaken to develop a water power in the Cottonwood Canyon and transmit electricity over a distance of fourteen miles into Salt Lake City, and there to sell the power to the Salt Lake & Ogden Gas & Electric Light Co. This undertaking was fully described in *The Electrical Engineer* of September 12, 1895. The Big Cottonwood Power Company will install a three-phase alternating system with a 10,000-volt transmission, stepping down at the distributing station in Salt Lake City to 2,000 volts. With these plans in view it was deemed advisable to put in three-phase dynamos at the Salt Lake electric light plant of sufficient capacity to supply the commercial center with incandescent lights, and machinery for this purpose was purchased from the General Electric Company and erected last November.

Generators.—The generating machinery con-

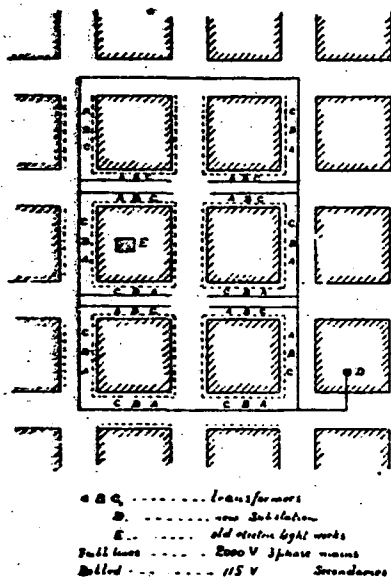


FIG. 1.—PLAN OF PRIMARY AND SECONDARY MAINS IN COMMERCIAL DISTRICT.

sists of two 150-kilowatt and one 50-kilowatt three-phase alternators. One of the large dynamos is belted to a countershaft with other dynamos and driven by a 600-horse-power Corliss engine, which runs at 100 revolutions per minute. The second is driven off the flywheel of a 250-horse-power cross-compound Armington & Sims engine, running at 230 revolutions. The third dynamo is used for the day load, and is driven off a 150-horse-power cross-compound Armington & Sims engine, together with two Edison dynamos used to supply power.

All the dynamos are designed for 60 cycles. They are compound wound and have iron-clad armatures of the latest type. The 150-kilowatt dynamos are wound for an output of 2,300 volts and 37 amperes at a speed of 600 revolutions; the 50-kilowatt dynamo is wound for an output of 2,300 volts and 13 amperes, at a speed of 900 revolutions. The manufacturers guarantee a commercial efficiency of 94 per cent at full load on the large dynamos and a temperature not to exceed 70 degrees Fahrenheit above the temperature of the surrounding atmosphere, after a continuous run at full load for ten hours. There has been no opportunity of testing the dynamos for efficiency at present, but they come well within the temperature guaranteed.

Switchboard.—The switchboard consists of five slabs of pink Tennessee marble, 90 inches high by 30 inches wide. Three of the panels contain switches for each of the three dynamos. One panel is for the measuring instruments, and the fifth panel is for the circuit switches and volt-

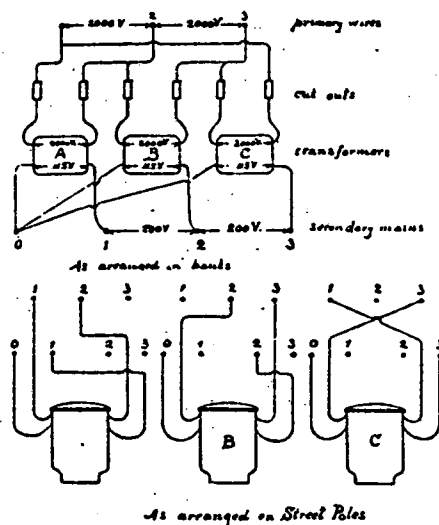


FIG. 2.—TRANSFORMER CONNECTIONS, THREE-PHASE SYSTEM.

meter. The dynamo panel is fitted with a Carpenter enamel rheostat for regulating the exciting current; one exciter double-pole switch; one three-pole main switch; one equalizer switch, for parallel running; one ammeter for measuring the main current on one leg of the three-phase system, and three high-tension fuses and a synchronizing switch. At the back of the board are the three high-tension mains' bus-bars, the equalizer bus-bars for connecting all the compound windings together, and three lightning arresters of the T.-H. magnetic blow-out type, with an additional protection of a flat coil of a few turns of large wire between the arrester and dynamo. Each dynamo has one transformer, which is so connected to a bus-bar that, by throwing a small switch, it can be used for lighting a pilot lamp or be put in series with the other transformers for synchronizing.

The effective current, as measured at full load on one wire of the dynamo, is 37 amperes upon the larger and 13 amperes upon the small dynamo. The total effective current on the three wires is about 1.73 times that on one wire. This being the ratio between the ordinates of one sine curve and the added ordinates of three sine curves at phase angles of 120 degrees. On the instrument panel are three main amperemeters for registering the whole current sent out on

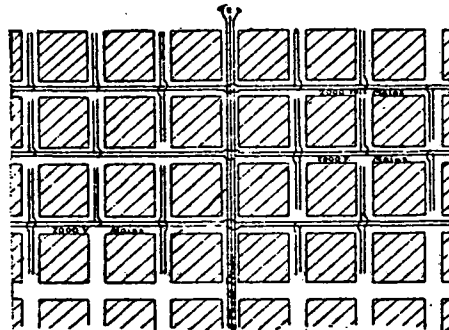


FIG. 3.—THREE-PHASE SYSTEM OF MAINS IN RESIDENTIAL DISTRICT.

each leg of the system and also a Thomson three-phase wattmeter. This wattmeter is simply a modification of the ordinary Thomson meter, and consists of three separate meters, the armatures of which are all on the same spindle. On the fifth panel are arranged four three-pole circuit switches, four sets of circuit fuses and a

Thomson-Houston voltmeter, arranged with a switch for connecting to any dynamo or any circuit. In addition to these instruments a Bristol recording voltmeter is fixed in the station. The whole board is protected by a wooden canopy, presents a very handsome appearance and is extremely simple to manipulate.

The compound commutators of the dynamos run absolutely sparkless, and there is no trouble at all in synchronizing. It may here be mentioned that the self-induction in the armatures of these dynamos is such that it is impossible to do any damage by a short circuit. Shortly after starting, a short circuit occurred on the main lines, while the small dynamo was running; the result was that the potential at the dynamo dropped off just as if the exciter switch had been suddenly opened, and, furthermore, the dynamo would not give any potential at all when running upon the short circuit. These dynamos, however, will carry 25 per cent above their rated capacity without any loss of pressure.

The Distributing System.—The distributing system consists of a three-wire high-tension network and a four-wire network of secondary mains. The accompanying plan (Fig. 1) shows how these mains are distributed over the business district. The transformers are placed upon the poles which carry the wires, and the connections are made as shown in the diagram, Fig. 2. In carrying out a system like this it is, of course, important that the transformers should be fixed quickly without any fear of getting the connections wrong. In order that the linemen may not be able to make any mistake in this, the wires on the poles are numbered, as shown, and the transformers are also lettered. The diagram also shows the position in which the transformers are placed in the streets, and the arrangement is such that in case of fire it would be very easy to cut off one portion of the district without interfering with the rest of the lighting.

In order to save the loss in transformers during the hours of light load, arrangements are being made for cutting out a certain number of the transformers during the daytime, leaving the rest to supply the secondary mains. The transformers are wound for a ratio of 18 to 1, and it will be noticed that the secondary mains consist of a neutral wire and three others. By this means it is possible to get 115 volts between the neutral and any of the three other wires for incandescent lighting, and 200 between any two of the other wires for motor service.

With the exception of one or two little difficulties inseparably connected with installing such a system as this during the heaviest lighting season in the year, there has been no difficulty whatever, and the dynamos and all other apparatus work perfectly. There is no difficulty in balancing up the three legs of the system, and, in fact, once the transformers and the secondary mains are fixed, it is said to be easier to manipulate than an Edison three-wire system.

As soon as the Cottonwood power station is ready for work the preparation will be commenced for connecting the residence district on the three-phase system. At present these districts are supplied on the ordinary 1,000-volt single-phase system. The diagram, Fig. 3, shows how the connections will be made for the three-phase.

The arrangement of the streets in Salt Lake City are convenient for carrying out the necessary changes. The streets run north and south and east and west. The existing 1,000-volt mains run east and west. The three-phase feeder, as shown, will be brought up one of the streets running north and south through the center of the residence district, and each of the streets will be attached to this feeder, as shown in the diagram; thus, where there are three streets, each one of the streets will form one leg of the three-phase system, and the three legs will be balanced by throwing the side streets on to

whichever leg requires strengthening or weakening, as the case may be. All the transformers at present installed in stores are wound for 1,000-volt primaries and 52-volt secondaries. Some of the stepdown transformers, supplied by the Big Cottonwood Power Company can be connected for 1,000 volts, and it is proposed to connect up the three-phase feeder to the distributing station, as shown in the diagram, at a pressure of 1,000 volts. The existing transformers would not be very efficient at 60 cycles per second, but as quickly as possible the old type transformers will be transferred to Ogden, while new type transformers will be fixed in the residence circuits, and then as soon as sufficient new type transformers are fixed the voltage will be raised to 2,000 and the house lamps changed from 52 to 104.

This is an outline of the system proposed to be pursued in changing over the residence district from the existing system to the new three-phase system. It will necessarily take some time to carry out this work, but there are portions which can very easily be connected up, while it will take several months to prepare other portions of the town.

In a great many parts of the residence district the houses are so close together that it is very easy to fix one or two transformers to supply ten houses. These transformers will be fixed on the street poles and a short length of secondary mains will be run, from which the houses will be supplied. At these places it is proposed to place two transformers, one, say, for 100 lights and another for about twenty, with an automatic switch, to cut out the larger transformer when the number of lights does not exceed the load of the smaller, and so save the loss of power at light load.

From the fact that the installation presents so many points of new and improved central station practice, its operation will be watched by electric light and power men throughout the country with keen interest. The active conduct of this important undertaking has devolved on Mr. R. F. Hayward, the well-known general manager of the company, who has carried it to its present successful stage with characteristic energy and ability.—*Electrical Engineer.*

Twenty Years' Progress in Telephony.*

BY S. C. McMEEN.

It is entirely likely that to most of you the title of this paper will appear quite other than broadly comprehensive. I assure you that such is not the case; for, although the time given includes all that has been done in the electrical transmission of speech it is still true that the energy spent upon the development of what has been accomplished is not second to that devoted to either of the other general developments of electrical science.

Oliver Wendell Holmes is reported to have said that a man's education should begin three generations before he is born. This is entirely true and likely falls within the fact. To consider for a moment the causes leading up to the development of speech transmission it must be borne in mind that the sole object to be accomplished is that of thought transference. Had there existed twenty years ago a method of reproducing the thought of one individual in the brain of another at a distance greater than that reached by air transmission of speech, the aggregation of apparatus known to us as the telephone would never have existed. The history of signal fire, semaphore, mail and telegraph transmission of thought shows the growing necessity of speedier means to fit the extending conditions of commerce. In any transmission there is not so much needed a means of increasing speed as of reducing losses due to too many transformations. A moment's consideration will show you that even in the present

perfected mail and telegraph services the cycle of thought transmission from the brain of the thinker to the brain of the thinker, as it were, includes many changes of form as well as arbitrary signs.

Arbitrary signs of themselves have many disadvantages with but one saving feature—that of occasional permanence of record.

In the following consideration of telephonic progress to the present time it will be attempted to condense within a reasonable space, first, what has been done in general terms, and second, what is the present stage of perfection. The latter alone would be sufficient if it were not so closely identified with the former.

It would be wholly unfair to earlier investigators to begin the history of telephony absolutely in 1876; yet what had been done before was crude

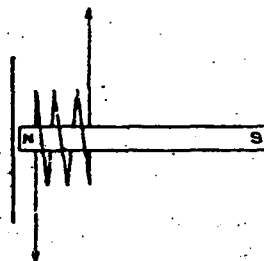


FIG. 1.

and preparatory. Philipp Reis had before that time succeeded in transmitting vocal sound, but never the complex motions necessary to the reproduction of articulate speech at a distance. He had clung persistently to the make and break of the telegraph, and could not, without abandoning that train of thought, have fully accomplished the end desired.

Bell, a teacher of deaf mutes, had made sound waves a study. His knowledge thereof exceeded his electrical training, yet his production of a speaking telephone in its early form need not be changed to-day to fulfill very largely the demands of practical commercial use. It consists of a permanent magnet, bearing upon one free end a coil of wire; near that end and free to vibrate at its center is placed a diaphragm of iron. This instrument serves both for transmitting and receiving and broadly exemplifies electrical transmission of energy. That is to say, it combines a moving armature, turns of wire and lines of force. A motion in the armature or diaphragm at the transmitting end produces in the coil of wire by moving lines of force, a true alternating current, exactly as is produced in the wire of any generating machine irrespective of external rectifying devices. At the receiving end these alternating currents are transformed and become motions of mass, and there the instrument is of course a motor.

In Fig. 1 are shown diagrammatically the essential portions of the magneto telephone. These parts are but three in number—the moving diaphragm, the permanent magnet, and the coil of wire.



In every essential characteristic except that of volume Bell's original magnetic telephones were, speaking broadly, perfection. That the volume should be deficient is natural and although investigators have steadily striven to produce a loud speak instrument, depending solely upon the powers of the voice waves to produce their own current for transmission, it is not likely that we will ever see a commercially practicable instrument of this type. Surprises may be in store, yet the natural limitations at this time appear too great for ultimate success.

This being true, and the field for investigation being broad, it was but a little time after the production of Bell's original device before

Hughes, of England, discovered the remarkable sensitiveness of carbon. The quality here termed sensitiveness means simply that carbon in certain forms is highly subject to change of resistance when subjected to pressure. Following directly upon the heels of this true discovery came the inventions of the transmitters of Blake, Berliner, Edison and others. In all these transmitters carbon is used in one form or another, the vibrations of the diaphragm being applied more or less directly to it, its resistance rising and falling in ratio therewith. Current from a constant source being allowed to pass through this carbon a variable but not alternating current results in the local circuit.

Fig. 2 shows the form of battery transmitter which has come most widely into use in this country, and illustrates, in principle, all forms of battery transmitters. That is to say, every battery transmitter utilizing carbon as a controlling medium amounts to nothing more than a valve. This valve is controlled by speech vibrations and in turn controls the flow of current.

It should be here noted that there is a distinct line of demarcation between truly dynamic transmitting instruments and these current controlling devices. There is fundamentally but little difference between battery transmitters of this type and the Morse telegrapher's key. It is true that in the carbon transmitter the current never reaches zero, as in the case of the telegraph, but the loudness of transmission is wholly dependent upon how closely the zero is approached without an actual cessation of current.

In connection with all of these forms of transmitting devices the Bell form of receiver has

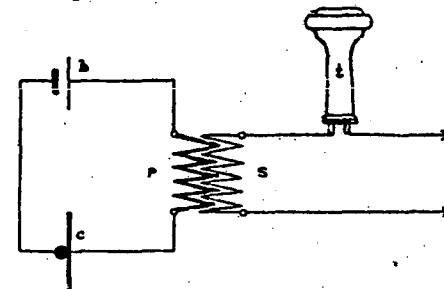


FIG. 2.

been continuously retained and is today in universal use. In its capacity of receiver it possesses a remarkable delicacy and sensitiveness, and has been changed in but the most minor degree from its initial form.

A simple calculation will show clearly that on a line possessing even a few hundred ohms resistance a variation so great as ten ohms in the transmitter, if the carbon were directly in the line, would produce but a comparatively small fluctuating value. The application therefore of the induction coil to battery transmitters was but a step. Imagine, if you please, a circuit containing a battery transmitter capable of producing a variation of ten ohms in a local circuit containing primary of induction coil, battery and transmitter carbon. Presume that the total resistance outside of the carbon be but one ohm, it would therefore be possible with a properly constructed instrument to produce a range of, roughly, say from two to twelve ohms. The fluctuating current values in the primary of the coil would therefore set up in the secondary alternating currents of such potentials as the transformer might be designed to produce. Such an installation exists at telephone local stations almost universally today and the application of the transformer of this type to telephony has been a potent factor in commercial practice.

In Fig. 3 is shown the usual combination of apparatus at a subscriber's station, *t* being the receiving telephone, *b* the battery, *c* the carbon, and *p* and *s* the primary and secondary windings of the induction coil.

(To be continued.)

* Paper read before the Chicago Electrical Association, March 6, 1896.

Electrical Transmission in California.

California is setting the pace for long-distance transmission in this country. Over \$1,400,000 has already been invested in such plants in the State and three similar plants are in course of construction which will cost over \$4,000,000. The electric power plants at Pomona, Redlands and Folsom have demonstrated what can be done. All have exceeded the expectations of their projectors in cheapness and convenience of electrical transmission. The Californians have a reputation of doing nothing by halves and it seems a mild statement that ten or twelve millions of dollars will be invested in electric plants and copper wire and machinery along the canyon streams in the Golden State in the next five or six years.

Senator S. N. Androus, of Pomona Valley, who has given the subject careful study, said recently that a manufacturing population of over 300,000 might be constantly employed in California if cheap motive power can be had. Costly motive power derived from coal worth not less than \$5.00 a ton has been one of the great obstacles that has confronted every plan for factories in the State. The only water power to be had is on the turbulent mountain streams away up in the mountains and rocky, narrow canyons, remote from towns and inaccessible for factory purposes. The practical demonstration that electricity capable of doing the work of ten, twenty or more thousand horse-power may be transmitted many miles over copper wires, marks the dawn of an industrial era in the State of California, long famous for her gold mines, wines, grains and fruits.

PROFESSORS H. P. PRATT and Hugh Wightman, of Chicago, announce that the germs of diphtheria and typhoid are absolutely killed by the Roentgen rays. This statement is made without reserve. The decision was reached when the last of the germs which had been exposed to the ray failed to show signs of life under the glass, the deadly bacilli remaining idle and inactive in the midst of the best and most tempting imitation of human tissue. Prof. Wightman prepared four new colonies of epidemic breeders. They were labeled as cholera, tuberculosis, hog cholera and diphtheria. They were located in tubes filled with nutriment. Prof. Pratt turned the current into the great cell, and the ray, which is believed to be the great solution of infectious and contagious diseases, was thrown into the groups of bacilli. A thorough examination convinced the physicians that all the germs were killed by the rays.

THE House Committee on Interstate and Foreign Commerce has reported favorably on a bill to grant a subsidy of \$100,000 per year towards the maintenance of the proposed cable from United States to China and Japan by way of Hawaiian Islands.

Present and Prospective Work.

Atlanta, Ga.—This city will soon have long distance connection with New York, via Nashville.

Johnstown, Pa.—The Johnstown Electric Light Co. will build an addition to its plant and add new machinery.

Rockford, Ill.—The Mutual Telephone Co. has already the assurance of over 400 subscribers for its new exchange.

Springfield, O.—The test of the Krotz underground electric street railway system recently made in this city, was very satisfactory.

Toledo, O.—The new power-house of the Toledo Traction Co. has a capacity of 5,000 horse-power and will be completed about June 1st.

Madison, Wis.—The Postal Telegraph Co. intends to extend its lines from Freeport to this city and open an office about June 1st.

Topeka, Kas.—The Fort Wayne electric corporation expect to have the new plant for lighting this city completed in about five weeks.

Winona, Minn.—The lighting and street railway plants of this city were sold at public auction for \$275,000 to the Merchants National Bank of St. Paul.

Huntington, Ind.—The United Telephone Co. is making arrangements to begin the work of connecting their exchanges at Portland, Bluffton and Huntington.

Milwaukee, Wis.—The Wisconsin Telephone Co. has decided to establish a branch station on the West Side similar to the one now in operation on the South Side.

Wichita, Kas.—The M. & K. Telephone Co. have secured an exclusive five-year franchise for this city; the rates to be \$36 for business houses and \$30 for residences.

Kenosha, Wis.—W. H. Wheeler of Beloit, has been granted a franchise to establish an electric light plant in this city and has a contract with the city to furnish 130 arc lights.

Hagerstown, Md.—The contract for building the electric street railway for Hagerstown has been let to Harrisburg contractors. The construction will cost about \$200,000.

It is rumored that the General Electric Co. will build the finest electrical manufacturing plant in the world, near Elizabeth, N. Y., and close down the factories at Schenectady, Lynn and Harrison.

Richmond, Va.—The Western Tel. Construction Co., of Chicago, recently completed in this city the largest anti-Bell telephone exchange thus far installed. The exchange has a capacity of 2,000 telephones.

Youngstown, O.—A new telephone company has been organized with \$60,000 cap-

ital. The rates will be \$30 for business houses and \$18 for residences. The new company will connect with all surrounding cities and towns.

Parkersburgh, Ia.—Both the Central Union and Cedar Valley Tel. companies are building in this town and will connect with surrounding towns. The Central Union has only a toll station but the Cedar Valley will put in a local exchange.

Des Moines, Ia.—The Mutual Tel. Co., recently organized in this city, has already secured 600 subscribers. Only 200 more are needed to meet the legal requirements, when work will be started. The new company will go underground in the business district.

Dayton, O.—Stern & Silverman, Philadelphia, Pa., have secured from the Dayton Traction Co. the contract to build and equip an electric road from Dayton to Miamisburg, a distance of twelve miles. The contract includes roadbed complete with bridges, cars, trucks, motors, Corliss engines, boilers, dynamos, power station, car barns; all to be completed by July 1st.

Philadelphia, Pa.—The city has granted a franchise to the Standard Telephone Co. for establishing an exchange. The company must pay the city 3 per cent of its gross receipts and furnish all city buildings with free telephone service. The company must file plans within ninety days after the passage of the ordinance and must have 2,000 telephones in service within one year after the approval of the plans.

Contract has been awarded for equipping the Euglewood and Chicago Electric Railway with storage batteries. This is the first railway in the country built exclusively for operation with storage batteries. The cars—forty in number—will be built by the St. Louis Car Co., the electrical machinery by the Walker Manufacturing Co., of Cleveland, and the Electric Storage Battery Co. of Philadelphia will furnish the storage batteries.

Niagara Falls, N. Y.—The plans for transmitting power to Buffalo and its distribution there, have been made public by the Commissioners of Public Works. The Niagara Falls Power Co. proposes to distribute the power over two trunk lines and the necessary lateral lines. The conductors for the delivery of 10,000 horse-power shall consist of not less than three nor more than nine copper cables, each six-tenth inch in diameter, not less than twenty-two feet from the surface of the ground, and to be carried upon porcelain insulators of special patterns designed for the work; and lightning arresters and other safety appliances of the most approved character known to electrical science shall be employed in connection with the line. The Buffalo Railway Co. and the General Electric Co. are the only applicants at present for power.



OFFICIAL JOURNAL OF THE
NATIONAL BROTHERHOOD ELECTRICAL WORKERS.
PUBLISHED MONTHLY.

J. T. KELLY, - Publisher and Editor,
904 OLIVE STREET, ST. LOUIS, MO.

ENTERED AT THE POST OFFICE, AT ST. LOUIS, MO., AS
SECOND-CLASS MATTER.

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St. Louis, Mo., May, 1896.

W. N. GATES, SPECIAL ADVERTISING AGENT,
29 Rockwell Avenue, CLEVELAND, OHIO.



THE United Labor League of Philadelphia is agitating the enforcement of the eight-hour law on Government work. The national eight-hour law compels all contractors and sub-contractors on Government work to employ labor but eight consecutive hours in one calendar day, which affects all work contracted for since August 1, 1892.

The Midvale Steel Works, of Nicetown, Philadelphia, are flagrantly violating the eight-hour law as applied to Government contracts and sub-contracts, by compelling their employes to work sixty hours per week, with no extra pay for overtime. The firm also refuse their employes the right to belong to a labor organization and have enforced a set of rules in their establishment which makes the condition of their employes that of a slave.

The United Labor League of Philadelphia asks labor organizations to petition the Secretary of War, the Secretary of the Navy and the Attorney-General, that in awarding future contracts, that firms and contractors who treat their employes fairly and have a respect for the United States law be given preference.

JUDGE CALDWELL, of the United States Circuit Court of Appeals, in rendering a decision last week, in St. Louis, in the suit

of Betty, widow of B. W. Whittle, against the St. Louis and San Francisco R. R. Co. rebuked his associates on the bench in the following language: "Juries are the constitutional triers of the facts and it is their exclusive province to decide what facts are proved. This was the unquestionable doctrine in all the courts for the first half century of the existence of the Government. It is only in recent times and since corporations have absorbed the capital and business pursuits of the country that a tendency has developed in some courts to infringe on the functions of the jury and the constitutional rights of suitors. This invasion of the functions of the jury is attempted to be justified upon the ground that juries are prejudiced against corporations and that it is the duty of the courts to protect them from such prejudice. This is an unfounded assumption. The danger to life and property growing out of the management and operation of railroads has been greatly lessened in recent years and the improvement is largely due to verdicts of juries."

SLOWLY but surely labor unions are gaining recognition, not only from the general public but even in our courts. A few years ago and even yet, according to some of our federal judges, members of labor unions were considered conspirators without any standing in the community or before a court of justice. Judge Caldwell, of the United States Circuit Court of Appeals, sitting in St. Louis, recently decided in favor of the Brotherhood of Railway Telegraphers against the receiver of the Colorado Midland R. R. When the Colorado Midland was thrown into the hands of the receiver, the Brotherhood had a contract with the company. Receiver Ristine denied that the contract was binding upon him and disregarded it, and in violation of the contract reduced the pay of a number of the men, in some cases below the minimum agreed upon, and refused to conform with the seniority rule and the agreement with regards to pay for overtime. Judge Caldwell has issued an order directing the receiver to conform with the contract of the company. But the effect of the decision is broader than this. It gives labor organizations a standing in court for the endorsement for their contract.

Justice Clement, of the Supreme Court of Brooklyn, has also rendered a decision defining the status of trades-unions, and showing the authority they possess over members. In this case, Luciana Conterno, the leader of the Ninth Regiment Band, was suspended from the Musicians' Mutual Protective Union for non-payment of a fine of \$100.00 for playing with non-union musicians. There is also a rule of the union that no member can play with a suspended member. The Union was about to enforce this rule which would exclude the leader, when he secured a temporary injunction preventing such action. On the

argument to make the injunction permanent and for a mandamus directing reinstatement in the Union, Judge Clement denied the application and expressed himself as follows: "Labor organizations are authorized by law and have the right to regulate the rate of wages and hours of employment of their members. They have the right to provide by-laws and enforce the same by fines; that their members shall not work with those not connected with the Union. The plaintiff is a leader of a band and while he is a member of the Union must abide by its laws, which are lawful. Courts of equity will not review the trials of members of associations, provided they are conducted according to their rules and provided the accused have an opportunity to be heard."

THE agreement entered into in 1879 between the Bell Telephone Co. and the Western Union Co. for seventeen years by which the Bell Co. agreed to refrain from telegraph work and from telephonic transmission of dispatch business and from handling all press matters, and the Western Union Co. agreed not to go into the telephone business, expires next November. Under this agreement, the Bell Telephone Co. pays 30 per cent of its net receipts to the Western Union Co. This has amounted to many millions. Will this contract be renewed? We scarcely think so. If the Bell Telephone Co. holds its monopoly on the telephone business, which will be the case if the Berliner patent is declared valid by the Supreme Court, there would be no object for it to continue the agreement, for conditions no longer exist as they did when the agreement was made seventeen years ago. Then the Bell Telephone Co. was a new-comer in the field, and with the thorough equipment of the Western Union Co., at that time could have been easily injured or perhaps driven out of the field by the Western Union going into the telephone business. Now, however, the telephone company, with its vast capital and long distance lines, is in position to hold its own against the Western Union. On the other hand, a defeat of the Bell Telephone Co. in the Berliner patent suit would mean an end to its monopoly and there would be no inducement for the Western Union to continue the contract.

Since this contract was entered into, another powerful company has entered the field, the Postal Telegraph Co, and while there may be some agreement entered into between the Bell Telephone Co. and the Western Union Co. to secure a monopoly of the telephone and telegraph business, it is quite certain the Postal will not enter such a combination, and we believe the Western Union and the Postal companies are as much interested in having the Bell telephone monopoly broken as is the general public. Should such a combination continue, it is entirely possible that the

Postal Co. may go into the long distance telephone business. We scarcely think it possible that all three companies will enter into a combination, but if such should be the case, it would be high time for the general Government to step in and interfere by establishing a telegraph and telephone system in connection with the postal service, and thus protect the people from such a gigantic monopoly.

We are at a loss to know why the press of the country should be so indifferent to its own interest as not to take hold of this matter. It is of vital importance to American newspaper interests, whether they have yet realized it or not, that the Bell telephone monopoly should not be sustained, or any monopoly which controls the gathering of news and transmission of information either for themselves or the general public.

Electricity, which has been waging war on electrical trusts and monopolies for several years, is publishing a series of articles on the Berliner microphone patents and exposing the frauds perpetrated by the Bell Telephone Co. in conjunction with the Patent Office.

On Nov. 17, 1891, Emile Berliner was granted a patent for a telephone transmitter after a lapse of fourteen years five months and thirteen days from the date of application. On account of the unusual delay in granting this patent, which continued the Bell telephone monopoly fifteen years after the expiration of its fundamental patent, the fraud in the case was so clear that on February 9, 1893, the United States filed a bill in equity in the Circuit Court of the United States for the District of Massachusetts against the Bell company and Emile Berliner, asking the court to cancel the patent on the ground that it was issued by the Patent Office in fraudulent collusion with the Bell Telephone Co. In the history of all patents issued by the United States, now numbering more than half a million, there has never been a case in which the department of justice has had occasion to so vigorously denounce the fraudulent acts of public officials as it has in the case of this Berliner patent. As the Bell patent under which it was operated as an exclusive monopoly for seventeen years would expire in 1893 and as it had already paid dividends amounting to over \$23,000,000 on a comparatively small cash investment, in order to maintain its monopoly and continue to pay large dividends to its stockholders it was necessary to have its monopoly continued by some fundamental patent. In 1877 Berliner filed his first application for a telephone patent. He was granted a patent on a receiver in 1882 and a patent on the same identical appliance in 1891 under the name of transmitter. This is the patent that was kept slumbering in the United States Patent Office for over fourteen years and was granted shortly before the expiration of the fundamental Bell

patent. The patent finally granted covered an entirely different apparatus and principle from that specified in the original application.

The position taken by the Bell Telephone Co. is this: The possibility that the specified instrument would transmit speech was one discovery and, therefore, the discoverer of this possibility was entitled to protection in the same by patent; the fact that the identical instrument would receive transmitted speech was a distinct and separate discovery, and, therefore, the discoverer was entitled to protection in the same by patent. The receiver, it will be noted, was patented before the transmitter, and a person not familiar with the subject would naturally conclude that for fifteen years we had been receiving messages by telephone without any instrument for transmitting the same. The absurdity of granting the patent of 1891 to Berliner when the patent of 1882 covered the same principle has been graphically described by a recent writer, as follows:

"Suppose Mr. A to have placed a box on two axles, each working in two wheels. This done, he finds that by pushing against the box the whole instrument will move away from him. Also, he finds that by means of a rope he can draw the instrument towards him, the direction of its motion now being opposite to the previous one. He now seeks the Patent Office for patents: in the first case for a wagon to be pushed, in the second, for the same vehicle or instrument to be pulled. He might choose to call the first a baby carriage; the second a dray, possibly. Now should he call this instrument a coach, should he not equally deserve a patent thereon?

"Let us suppose that Mr. B by moulding clay, by turning wood, or by other means produces a utensil capable of holding liquid and finds such utensil useful for drinking purposes, and receives a patent thereon. Should he now discover that the same utensil might be used as a slop bowl, should he be entitled to a new patent on the same utensil? or, because he finds that water may be poured into this vessel, it shall be called a receiver, and be secured to him by patent, and then, because he discovers that water may be poured out of the identical vessel, it shall be called an "out-pourer" (transmitter) and secured to him as such by patent?"

THE Correspondence School of Technology, Cleveland, O., has prepared a Special Course for Electrical Workers and offers reduced rates to all members of the Brotherhood who will start the course during this month. In a letter outlining the course, the secretary of the school says: "We are informed that our present electrical course demands more money and time than many of your members can afford, but that if we prepared a cheaper course especially prepared for Electrical Workers, it will be taken advantage of by a large number.

We have made special arrangements relative to the preparation of a course which will be sure to be of most exceptional value. In addition to our regular instructors we have secured the coöperation of Mr. Geo. W. Cleveland, insurance inspector, and Mr. Geo. M. Hoag, city electrician of Cleveland, and also of several men engaged in line work and inside wiring and they will give us the benefit of their experience and knowledge. A special feature will be the numerous illustrations and also many wiring plans, fully worked out and described. The course will embrace arithmetic and mensuration; sketching, making plans and reading drawings; the principles of electricity and magnetism, current generations and laws of current flow, permanent and electro magnets and the law of magnets; measuring resistance, volt meters and ammeters, testing for grounds, short circuits and other electrical faults; batteries, primary and secondary; dynamos and motors, principles of the various types and illustrations of same, such as continuous, alternating, polyphase, etc.; lamps, converters, telephones; wiring calculations and plans; line work, street railways, etc.; wire insulation, fuses, specifications, estimates of cost, labor and material, insurance rules, etc."

The course will take from nine months to a year to complete and the cost will not exceed more than from about \$1.25 to \$1.60 per month!

The Correspondence School of Technology has established an enviable reputation as one of the leading correspondence schools in the United States, and all who take the course can feel assured that they will receive many times the value of the money invested.

As education and maintaining a higher standard of skill is one of the main principles of our organization, this course offers exceptional advantages to our members, and as many as possible should take advantage of it. In a number of cities we are advocating the licensing of electrical workers and should be assured that we are ourselves competent both in the theory and practice of the best electrical engineering before insisting on the adoption of such rules.

By addressing the Correspondence School of Technology, Cuyahoga Building, Cleveland, O., a circular descriptive of the course and giving detailed information as to payments, etc., will be mailed to any electrical worker.

Information Wanted.

Anyone knowing the present whereabouts of Chas. F. Fleming, who joined the Brotherhood in June, 1895, in Bloomington, Ill., and was heard of in Chicago, July 2d, will please communicate with his mother, Mrs. M. Fleming, No. 1414 W. Congress street, Chicago, Ill.

Discussion of economic subjects should be encouraged, but no attempt should be made to commit the organization by resolution or otherwise to any particular doctrine.

FROM OUR UNIONS.

ST. LOUIS, MO.

Editor Electrical Worker:

Not knowing whether the Press Secretary of No. 1 took the hint in last month's *WORKER* and has contributed something for your next issue, I will again venture to contribute a few items.

No. 1 has made more progress during the last month than for a year previous. We have held two open meetings, at the first of which Owen Miller, National President of the Musician's League, and H. W. Steinbiss, Secretary of the Building Trades Council, addressed the meeting, and at the second we had the pleasure of listening to Chas. Kassel, Organizer of the A. F. of L. for St. Louis. All the addresses were good and to the point and seem to have had a good effect on our members and visitors, as a large number of applications were received at each meeting. We have received about fifty applications during the month of April and are working hard to make the city thoroughly Union, although the Bell Telephone employees are holding back for some reason. Probably they are afraid of their jobs, as a large number of them are working below the scale. They probably want the Union to first reduce the hours of work and increase their wages and then they may condescend to join. We may have something further to say on this point later on.

Business has not picked up as much as I expected when I wrote last month. The linemen seem to be nearly all employed but quite a number of the inside men are still idle. Work has started on the Chemical Building, 8th and Olive Streets. It was first reported that the Western Electric Co. had secured the contract for wiring this building but it now develops that a scab fixture house (Fay Gas Fixture Co.) has the contract and has started work. The foreman in charge, Chas. Renard, was a member of the Union some years ago. He was taken sick, drew about \$75 in sick benefits and never attended a meeting afterwards, and was finally suspended for non-payment of dues. The contract on the Chemical Building calls for iron armor conduit, this being the first large iron armor conduit job in the city, and I understand the Fay Fixture Co.'s bid was just about high enough to cover cost of material. I understand they are offering \$1.50 per day for men. The Building Trades Council meets on Wednesday night, and on Thursday morning look out.

Work is being rapidly pushed on the Auditorium Building, where the Republican National Convention will be held. The difficulty reported last month on account of the contract with Mesker Bros. was settled by revoking the contract and letting it to a Union firm. I presume the wiring will not amount to a great deal as arc lights will be used for the few days the

convention will last. Not much pains will be taken with the wiring.

The Bell Telephone Co. will install a system of telephones in the Auditorium Building by which the speaker's desk and the various state delegations will have telephone connection with each other by means of a switchboard in the hall. The advantage of this is manifest to everyone who has ever attended a national convention. It will enable the chairman to announce the name of the speaker who wants to address the convention without having to embarrass the speaker by sending a messenger to inquire his name. The detail of the plan proposed does not differ from the system of room-to-room telephone in vogue in the larger hotels.

Manager Daugherty, of the Postal Telegraph Co., says that his company will furnish the best service ever provided for handling the news from the National Convention in this country. Three new copper wires are being strung between this city and Chicago and two more from here to New York direct. Thirty loops will be run direct from the main line wires of the company into the convention hall and a force of thirty operators will be there to send the matter for the newspapers and all special telegrams. The space allotted to the Postal Co. is on the west side of the hall alongside of the platform, only a short distance from Thirteenth street entrance. This is particularly favorable to the company because its main lines run through the conduit in the alley between Chestnut and Market streets, only a short distance from the auditorium. In their main office in the Laclede Building, in addition to the equipment already in use, there will be twelve new quadruplex and six duplex sets, besides four sets of repeaters. Manager Daugherty states that his company will be prepared to handle 100,000 words an hour.

The Western Union will have the space to the east of the platform. It will have even more wires than the Postal as it has the Associated Press and the United Press to take care of, and each will require two or three wires. In order to be able to handle the great press of business the company is stringing six new copper wires from St. Louis to Chicago and four from here to New York. The four new circuits to New York will be augmented by the use of two new copper wires put up by the Vandalia road, after the Pennsylvania consolidation. These will be turned over to the use of the Western Union after six o'clock each evening. About fifty loops will be run into the convention hall and the company will be prepared to handle about 150,000 words an hour.

The City Council has passed a bill authorizing a change of motive power on the Fourth and Chouteau avenue road. This road is known as the People's or Green's road. It is probable that an underground

electric system will be used. General Dodge, who is at the head of the company that owns the underground patents, will visit St. Louis shortly and make arrangements for putting in 200 yards of road free of cost. If it proves a success, the railway company will defray the expenses of the section built, and order the change to be made over the whole road at the earliest date possible. The terminus of the road in front of Tower Grove Park will probably be selected for the experiment.

The Southern Electric road is doing considerable rebuilding and also extending its line to Jefferson Barracks. The line to Jefferson Barracks will be double track and will probably be in operation before Decoration Day and catch part of the crowd that visits the National Cemetery at Jefferson Barracks on Memorial Day.

After an agitation extending over about six years and the introduction of a number of bills only to meet defeat in one or another branch of the city government, an underground conduit bill has at last been passed and signed by the Mayor. The bill provides that all wires excepting trolley, burglar alarm, commercial printing, night-watch, and messenger wires shall be placed underneath the surface before July 1st, 1900, in the territory embraced between the river, Twenty-Second, Wash. and Spruce streets. After six months from the passage of the bill, companies may begin the work of constructing conduits, plans of same to be approved by the Board of Public Improvements. The Board of Public Improvements is to advertise, designate a day for hearing, and have complete supervision of everything relating to the construction of conduits and the placing of wires underground. The city reserves the right at any time after the expiration of fifteen years from date of approval of this ordinance to purchase any or all of the conduits. Each company must give a bond of \$50,000 for faithful compliance with the ordinance. No permit shall be granted to any company to go underground, unless it files with the City Registrar a release in writing of all claims against the city to pay any portion of the cost of burying the wires and also an acceptance of the ordinance in all its provisions. No company can sub-let or lease any portion of its conduit. The price for service shall not exceed the price paid for service rendered on the first day of January, 1896. The franchise expires April 15, 1940. All poles must be removed from the streets within thirty days after the wires have gone into the conduit. Five per cent of the gross receipts of the companies operating under city franchise must be paid to the city for the privileges.

Edward P. Meaney, of the Long Distance Telephone Co., is in the city and says that his company will give St. Louis temporary long distance service for the Republican National Convention. The

fact that the telephone wires in St. Louis have not been underground, and a metallic circuit used, has prevented St. Louis from having long distance service heretofore.

On last Thursday evening I had the honor to be invited to attend the opening of the St. Louis Master Builders Association Exchange in the Turner Building. The Master Builders Association was recently organized. The initiation fee is \$100 and the yearly dues \$25. Some of the electrical workers of St. Louis, who hold aloof from the Union, should have attended this opening and found out why the master builders have organized, and if they have any sense, reason that if the master builders find it necessary to have an association or union, why is it not necessary for the electrical workers also to be thoroughly organized?

Mayor Walbridge, ex-Governor Stanard, and a number of other prominent citizens addressed the meeting. All spoke of the necessity of organization; and with the substitution of the word "Union" for "association" any of the speeches would have been delivered as a trade-union lecture before our Unions. Mr. Galt, a prominent St. Louis lawyer, spoke eloquently on the necessity of organization and referred to the lawyers' union, better known as the Bar Association, and wittily remarked that a person who tackled the Bar Association generally felt as though he had attacked a "bar," and then displayed the usual consistency of lawyers by making a bitter attack on trades-unions. Very few in the hall applauded his sentiment. Mr. Galt was followed by Mr. W. S. Eames, a distinguished St. Louis architect, who represented the St. Louis chapter of the American Institute of Architects at the meeting, and when he got through, Mr. Galt "of the St. Louis Bar" must have felt like crawling into a hole and pulling the hole in after him. Mr. Eames made an earnest plea for the rights of laboring men, their right to organize and to deal with the contractors as an organized body, and not as individuals, where each would be in competition with the other. He stated that counting dull seasons, rainy weather and the almost entire suspension of the building industry in winter, a building mechanic no matter how good his wages scarcely ever averaged \$600 a year. On this amount he had to support and educate a family and make provision for future emergency. What would a master builder think if he had to live on \$50 a month? Mr. Eames deserves the hearty thanks of organized labor of St. Louis for his courageous words spoken at the inauguration of the Master Builders Exchange.

It is needless to say that the reception was in keeping with an association having \$100 initiation and \$25 a year dues. Refreshments of all kinds were served and champagne flowed like water.

A MEMBER OF NO. 1.

MILWAUKEE, WIS.

Editor Electrical Worker:

Local No. 2 is still to the front. At the dance given for the benefit of the unemployed Union men of this city at West Side Turner Hall the boys carried off the beautiful silk flag offered as a prize for the most popular Union. Our President, M. J. Quirk, smiled serenely as the result was announced from the stage, and the scene amongst the boys can be better imagined than described.

The next news of importance is the ball given by the members of Local No. 2, at the Liedertafel Hall, March 28th. The most laudable feature of the evening was a wrestling exhibition between Bro. Fred Raymond and "Sandow," better known among the boys as "Shorty," "Sandow" winning easily. The match lasted fifteen minutes.

The dance after the entertainment was a brilliant success. All that had the good luck to be there went home well satisfied after having enjoyed a good night's fun.

A short time ago Bro. E. H. Cook, chief electrician for Schlitz Brewing Co., one of the largest breweries in the country, was elected a trustee in place of Bro. West Dunning, Bro. Dunning having resigned. Bro. Cook is an active member and a good, true Union man, and no doubt will be the right man in the right place.

I will have to close for this time, and hope that some of the brothers here will send a line or two to the next WORKER.

WM. HOGAN, *Press Secretary.*

NEW YORK CITY, N. Y.

Editor Electrical Worker:

Local Union No. 5 sends this month very little actual news, which is a sign that things electrical must be satisfactory as "No news is usually synonymous with good news."

With the advent of an early spring and the assistance of the numerous boards, fire underwriters, insurance, State, etc., in ordering reconstruction under the new rules, work has resumed its normal condition and pretty well all our members are now gathering in the needful.

We are looking forward to the opening of an extremely interesting exhibition, or "electrical show" as it is advertised, in which we are promised an insight into some of the latest discoveries in our business. One of the exhibitors being at one time in the employ of the Edison company and personally known to a number of us, he promises to show us the "light of the future"—his own discovery.

One of our workers has had an offer from an electrical journal at a fair remuneration to write articles appertaining to wiring, etc., thus showing that those in position to know are beginning to realize that the man actually on the job can give valuable points to architects and builders as to the best methods of construction.

There has been a deal of discussion

about the pending political bill to license wiremen, now before the Legislature at Albany, and the writer begs the privilege of stating some personal opinions. One is that if it is beneficial for wiremen to be licensed, those requesting examination should be examined verbally, and not by stereotyped written questions that a boy from school could be coached to answer, possibly better grammatically, and maybe theoretically, than an old, tried wireman. Theoretical knowledge for a workingman is a grand thing, but of little use without practical experience. It is too much like a ham sandwich with one of its component parts left out. We remember one instance when a youth spent the greater part of an afternoon airing his profound knowledge, to the neglect of his work, as to the possibilities of insulating magnets, X rays and kindred interesting subjects, and finished up by spoiling a handsome marble panel board by trying to fuse up the mains with the current on and all the lamps in circuit. Another opinion is that no one should be eligible for examination who is not an American citizen. This would keep out an element whose principles are in a somewhat latent condition, and who have not been educated up to the standard that makes good Union men; an element that would be willing to work for a much inferior wage than the Union scale, and think it a handsome salary in comparison to that received in the country from which they came. By forcing applicants to become citizens, it would tend to make them take more interest in the land that gives them their home and living. To show how peculiarly this bill is being handled, we have from the authority of no less a person than the man himself, the information that the chairman is already appointed, although the bill has not yet become a law. We cast no reflection on this premature chairman, as he fortunately happens to be a man in receipt of a large salary from the insurance companies, and it is to his interest to have first-class workmen do first-class work. But that fact does not alter the political character of the measure.

Another topic that has received consideration lately is that of sympathetic strikes, and the prevailing opinion is that they are decidedly injurious to the employe as a rule. The very fact that the employers favor them is sufficient reason that we should pause considerably before engaging in them. In the majority of cases a sympathetic strike is the only salvation for the contractor in whose shop the trouble arises—for instance, say the plumbers have a grievance; the bosses, or perchance the men, refuse to arbitrate; you will notice that the party in the wrong always states they have nothing to arbitrate, and a strike is the consequence. As a rule, at any rate in New York, contractors get ahead of their supply of material, and a sympathetic strike is a Godsend to them. Should the firm be allowed to go it alone,

they would soon be compelled to come to some settlement; their work being at a standstill would soon block the other firms, and thereby touch their pockets, a very vital spot nowadays, whereas if all trades leave, the building material would accumulate, and work, instead of being covered up, would remain in the same stage as when left, and a few extra men would soon pull up the time that was lost and the strike would be a failure.

In making a few further remarks to the brothers, who feel that they are slighted by the employers, we would suggest that sometimes the fact lies in the brother not keeping abreast of the times. If we cannot adapt ourselves to the ever-changing condition of things, we must inevitably take a back seat, and we find that men who held their own in the days of staples and underwriters' wire, are not in it in these times, when one has to use his brains, iron tubing and automatic switches.

There is one thing that strikes us as radically wrong, and that is that Unions do not do day-work jobs to their own advantage. A business firm, say, has a month or six weeks' work for three or four men; they send to a contractor and he rents the men out at a profit on their labor alone of about seventy-five per cent. He is the middleman; in this case he neither uses or produces but collects toll on the work of others without the expenditure of either brain or muscle. Why do not Locals have employment bureaus where competent men can be employed, together with foremen capable of superintending the work? Those firms giving out day work could then pay even less per day, and still the workmen could get fifty cents per day above the usual wage. We presume that the same condition of things prevails in the vicinity of other Locals, and in closing, would suggest that this subject be given thoughtful consideration, and that the electrical worker who is now in many places in point of wages only 25 cents above a common laborer, may reap some of the benefits financially that the progress of his profession demands.

JOHN SHERWIN BULL, *Press Secretary.*

SAN FRANCISCO, CAL.

Editor Electrical Worker:

Local Union No. 6 at a recent meeting elected your Uncle Fuller as Press Secretary. They did a very brilliant stroke of business when they did so—"nit." I will endeavor to make them tired of their choice.

Well, to begin with, we are taking in from one to four new members at every meeting. There are but few idle men here, either Union or non-Union. There are a great many non-Union men here whom we expect to add to our circuit in the near future. The prospects are good for plenty of work this season.

There is a new telephone company in the field trying to get a franchise, and the

old company has a large amount of work laid out.

The Sunset Tel. & Tel. Co. are preparing to lay a seven-pair cable across the bay from Frisco to Oakland, a distance about three miles. Also one across the straits, at Port Costa. They will then take up a fifteen-pair cable from Goat Island to Oakland, and repair it.

Not long since a gang of Postal Telegraph men were landing a cable under the dock at the foot of Market street. Their boat became top heavy and capsized; all escaped with a good ducking. We did not hear what they were loaded with.

Jas. Hutton, a lineman in the employ of the W. U. Tel. Co. fell from a pole and received injuries that will confine him to his bed for many weeks. He was taken to the Receiving Hospital, where it was found that both his arms had been broken in several places and that his body was severely contused.

A local paper has a special from Nevada City about the death of Chas. L. Farris, electrician and lineman for the Nevada County Electric Power Co. Farris was making some repairs at Providence mine. He had climbed a pole for the purpose of soldering a joint, when one of his spurs slipped and he threw up one hand to save himself. As he did so his hand caught a bare wire that was carrying about 3,000 volts and held him as in a vise. Death was probably instantaneous.

Bro. Koons has been on the sick list for some time past. He is rapidly recovering and will soon be in the ranks with us again.

Just at present the labor circles of San Francisco are receiving quite a shaking up. The painters who have been out on a strike for some time past, report a victory, and all returned to work at noon April 5th. They had the sympathy of the public and all Unions in the city. They went out to compel the recognition of the card system, eight hours work and \$3.00 per day.

There is an organization here known as the Labor Alliance of San Francisco; it is intended to be a political body, and is also trying to abolish and supersede the Labor Council. The Labor Council is fighting to maintain the position it has gained in the labor world; both bodies are composed of delegates from other Unions. I would advise all Unions to be careful which body they support, as a mistake may be serious.

C. E. MASTEN, *Press Secretary.*

DETROIT, MICH.

Editor Electrical Worker:

As our long Bro. "Tom" pleaded inability to attend to the duties of Press Secretary, and as he is the Vice-President of No. 17 and a delegate to the Trades Council, and on two or three committees, the Union decided that he was doing enough and your humble servant was honored with the position.

There have been several accidents among the boys of No. 17 lately.

Big jolly Duncan B. McIntyre strained his back badly while wiring the new High School, and as he is an athlete and the champion wrestler of Michigan as well as a wireman, the accident is doubly bad for him, as he will not be able to take part in any tournaments this spring.

Bro. Robert Phillips, while on a pole, fell thirty-five feet and landed on his thigh. No bones were broken, but he received a very severe jar. He will be out in a few days. He fell in the same way Bro. Klein did. He has been working twelve years for the electric light people. He says they cannot kill him, and it looks like it.

Bro. Frank Kubiak, lineman for the Electric Rapid Transit Co., met with a painful accident the other day, and is still laid up. He is an old-timer at the business and has strung telegraph wires all over the West.

Bro. Gerald Salmon is also on the sick list, but hopes to be out soon, so you see the Detroit boys are hard to kill, even if they do have lots of accidents.

The Harrison Telephone Co. is going to put in a new plant here this summer to compete with the Bell Co., which will make things lively for linemen for awhile.

We were much pleased to see the advertisement of Hamilton Carhartt & Co. in our Journal last month. Their factory is in this city, and they employ an army of people, and every one is Union from the cellar to the garret. They must join the Union to work there. Those are the kind of people to patronize, especially all Union men should, and as many others as are impressed with the justice of the cause of unionism.

IN MEMORIAM.

At a regular meeting of Union No. 17, held April 9, 1896, the following resolution was adopted:

WHEREAS, Death has entered the home of our brother, J. G. Forbes, and taken from him his beloved wife, therefore be it

Resolved, That all members of this Union extend to him their heartfelt sympathy in this, his hour of affliction, and that a copy of this resolution be sent to our official journal for publication.

F. KLEIN, G. H. BEAMER,
J. RUNKLE, G. B. SHEEHAN,

Committee.

Now, brothers, all over the United States, make it a point of duty to never miss a meeting. A good attendance is the great promoter of interest in all Unions, and also very cheering to the officers and wheel horses.

DANIEL ELLSWORTH, *Press Secretary.*

KANSAS CITY, MO.

Editor Electrical Worker:

The space set apart for No. 18 has been a blank for some time, which I am sorry to admit, but owing to the condition of Kansas City for some time, I was unable to give any good local news to write about. We have every assurance that there will be plenty of work for all the brothers here

soon, according to reports, and we hope they are not fictitious ones. At present most of the idle brothers are out of the city, but we hope we may be able to call them in shortly.

We added one additional light to our grand circuit at our last meeting and reports of five more on the way, which we hope to connect up and have burning by the 15th of May.

The Metropolitan Street Railway Co. let the contract on the 25th inst., for laying new rails to Rosedale on the Boulevard car line, to the American Railway Construction Co. of Chicago, to be completed by August 1st. The new rails will be heavy, and bonded for an electric line during the summer, for which they are now receiving bids for the overhead construction. The change of motive power will not be made until the new power-house at Riverview which is to furnish power for the whole Metropolitan Street Railway system, is finished, which will be a monster when completed.

C. H. ADAMS, *Press Secretary.*

CHICAGO, ILL.

Editor Electrical Worker:

On going to close the switch for May, No. 19 finds company. A new fuse-box is installed alongside and its sign is No. 20, wiremen. Though the sister's advent was unexpected, we look to her to take her legitimate place and help raise the standing of our common craft. There is no snap in this city for new Unions. Our "runs" in the past have left a counter E. M. F. and No. 19 looks to nothing but a steady amperage to restore the lost magnetism.

A friend was lately presented to our President Bro. Conklin, whose name is Cushing; they are always in company now, and Bro. Larson is just suited to this town of nickels and cents, as a bill of \$1.42 did not faze him any.

Our brothers thought that 60th street was too much like going South for the trimmers down town, so we took the other room at No. 184 Madison street and are "rubbering" with No. 9. All the trimmers south of 39th street are members, with one or possibly two exceptions, and even those to whom it would mean four fares voted with the rest. Larson "biked" the twenty-five miles last meeting.

The first down town brother came in two weeks ago and we look forward to reopening the charter at an early date, to give the rest a chance to "do us the honor." The credential to reopen is to hand.

The members are believers in good by-laws. The by-law committee stands instructed to write to all the other Unions for copies, and when the final compilation of wisdom (not lemon skins as Bro. Balser of Washington has it), is complete, those who have helped us will not be forgotten.

The raised dues and initiation fee meet with approval.

D. PEARCE, *Press Secretary.*

WASHINGTON, D. C.

Editor Electrical Worker:

I wish to announce to the Brotherhood that No. 26 contemplates moving its quarters to a fine suite of rooms and hall 508, Eleventh street N. W., in which we intend to hold fort with our present body. We intend to have a library and cigar stand; a telephone will be at our disposal 365 days in the year; all brothers out of work can come to the library and instruct themselves in electric literature. Any firm wanting a man can call up the 'phone and secure a Union man, if there is one out of work—a tip-top idea, brothers; what do you think of it?

I would like to call the attention of Locals of our section to applicants for membership; inform us of their names, for we have an X rays kodak, and have secured a couple of pictures.

Work in Washington is very slack at present, but am glad to say all men are working. We elected delegates to the American Federation of Labor last meeting, and hope it will prove beneficial to Local No. 26. I will tell the members more about our quarters next issue.

BALSER, *Press Secretary.*

BALTIMORE, MD.

Editor Electrical Worker:

Warm and pleasant spring weather, though somewhat behind time, has finally arrived on the scene of our labors, gladdening the hearts of all, particularly the outside men, and breaking the monotony of the stormy weather we have experienced for the last two months.

Work seems to be opening up with the season. The Baltimore Traction Co. are extending their Ridgley street line a distance of about two and one-half miles to Meters pavilion on the Spring Gardens; work to be completed by June 1st. The contract for reconstruction of the Pikesville line trolley work for the same company is reported to have been let.

The case of Blake vs. The Brush Electric Co. and The Maryland Electric occupied the attention of the court for a full week and ended in the boy Blake securing a verdict for \$3,000 damages for personal injuries received by his coming in contact with an awning that was crossed with a dead arc wire that had become crossed with a working feeder several squares farther down the line. Among the witnesses were about twenty of the brothers of No. 27 who unanimously agreed that they would rather be at work than waiting to tell of something they knew nothing about. The expert electrician who admitted he had never had any practical experience outside of a laboratory, seemed to carry more weight than the men who do the work.

Mr. Andrew Magann, while working with a crew of men taking down the overhead wires of the police and fire alarm telegraph met with a very sad accident that

resulted in his death a few hours after. The accident was caused by a rotten pole breaking off on the removal of the wires holding it, falling with him to the ground. Mr. Magann was about sixty years old and an old-time lineman.

Our last meeting was very largely attended. We were favored with several able and prominent speakers on popular subjects of the day. We are also making a specialty of discussions on practical electrical subjects by taking a different subject for each meeting and appointing a member to study upon the subject and demonstrate and illustrate on our blackboard, teaching many things one is apt to overlook, or which he has no time or opportunity to go into profound research to find. No. 27 sees a decided improvement since making a special feature of this subject.

Last quarter shows an enormous amount of benefits to sick brothers, there having been more brothers on the list than in any previous quarter; in consequence of which it becomes necessary to issue an assessment of fifty cents per member. Some objected to it at first, but when they found it was to help the sick, were very willing for it to be twice the amount if necessary, as they are determined that the unfortunate must and will be taken care of by us. May the generous brothers here have no occasion to draw from this fund.

P. H. WISSINGER, *Press Secretary.*

BOSTON, MASS.

Editor Electrical Worker:

Local No. 35 is now growing rapidly. As you know, our Union was considerably under the weather for some time, on account of the dull times and inactivity of our members, but they have seen the folly of their ways, and through the earnest and active interest taken by our officers for this term, the other members have imbibed of the same enthusiasm, so that No. 35 is coming back to where she rightfully belongs, and that is on top.

Work in and around Boston for the last year has been very scarce, but we are in hopes, from the way things look at the present writing, that we are about to have a boom in our line; and steady work, you are aware, is very essential for full coffers, for when they are depleted it is hard for a man to keep his end up. I write this to show why so many of our members fell by the wayside in their financial obligation. Let us hope in future that we will have better luck in this respect. Another reason, and to my mind a good one, as I have worked in all the principal cities in the union, is that I find it much easier to organize in other cities than in Boston and vicinity.

I hope that the press secretaries will keep brothers posted in regards to work in their city, and that they are not hampered as we are in our city by unscrupulous politicians. As you are aware, Boston is a monopoly burdened city, and when a man

wants to work he has to go to a politician or he cannot get a job. Our fire-alarm and police signal service is rotten, and is run by men who do not know a transmitter from a hand organ. You can judge for yourself, when only about two out of ten are practical linemen. But with private corporations we are blessed with one thing, the men having charge do more to advance organization than the men do themselves.

I am sorry that Local No. 56 had to go to the wall, but am in hopes the best element will come in to No. 35. We received four at our last meeting, and expect to get as many more at our next meeting. If No. 35 had been in flourishing condition herself, we might have come to the rescue earlier, but one sinking ship at a time was enough. We have gone through our hardest struggle, and let us hope the experience will prove an object lesson to our members, and that hereafter we will one and all improve on our part, for as things stand now in Boston with one Union, there is no good reason, provided no more charters are granted, and we have every reason to believe there will not, why No. 35 before the year is out will not have from 350 to 500 members in good standing, for we have now what we never had before, and that is a working representative on the Executive Board in Bro. Colvin—one who, under no circumstances, will shirk his responsibilities, and who by his sterling qualities and hard work has done yeoman service in helping to build up No. 35.

In the controversy between Nos. 5 and 34 our Union voted to indorse the action of the Executive Board, believing that the Executive Board has acted from motives that were pure and for the best interest of the Brotherhood; still wishing No. 34 success, for to my personal knowledge, brother linemen in New York and vicinity must have changed very much if they would not go further than Brooklyn to attend a meeting in the interest of the Brotherhood. With over two years' experience, a better class of men I never met, and 486 linemen thought it no trouble to go to Brooklyn, Jersey City, and in fact, all parts of New York to hold our meetings at the time of the Western Union strike. I hope they will be as loyal to the Brotherhood to-day as they were in those troublesome times.

Bro. T. E. Gibson was killed while wiring a building on Washington street. He was placing wires on an outrigger five stories high, when suddenly the whole thing collapsed and threw him on a slanting roof two stories below; sliding off the roof he fell through a plate-glass window into a room in the building, crushing his skull, and for seven days he lay in the city hospital unconscious, before he died. He was one of the regular attendants at our meetings, and was very popular among the boys. They feel his loss keenly and paid him all the respect that lay in their power by sending a floral tribute and also sending a large delegation to his funeral.

Our worthy Treasurer, after being laid up for three months from an accident he received while in the discharge of his duties, has again made his appearance among us, looking to all outward appearance none the worse for his accident. But we are sorry to say looks do not count for much, as he is all shaken up internally, and it will be some time before he can resume his regular vocation. We are pleased also to announce that our late Financial Secretary, who received a bad burn on both hands, has recovered sufficiently to report for work.

DANIEL B. SMITH, *Press Secretary.*

ST. JOSEPH, MO.

Editor Electrical Worker:

Business is rather dull in our vicinity at the present time.

Our new City Council was installed on the 20th, but have not yet appointed a city electrician. While the indications are pretty bright for a member of No. 40 for the place, still there are some chances against us. The old telephone company are at a standstill yet waiting for the completion of their new exchange building. The new telephone company are doing a little work, but have not put on any extra force lately.

I made mention in the March WORKER about ex-brother Harry Miles, and have since heard that he is at Cairo, Ill., working for some telephone company. I would advise all brothers to look out for him and any information in regard to him will be appreciated by No. 40, as we think it only right that he pay up the lawful debts he owes in this town.

Would like to know the whereabouts of Bro. Caleb Lucas. He is a good worthy brother wherever he is, but he seems to neglect writing to his folks who live in this town and would like to hear from him.

No. 40 rendered a decision on the controversy between No. 5 and No. 34 in favor of No. 5. Nuff sed.

H. T. SULLIVAN, *Press Secretary.*

PHILADELPHIA, PA.

Editor Electrical Worker:

We have very little to report this month, as everything is very dull in our line in this city. Some of our brothers are working in Atlantic City, and last week we had a letter from our active member, Bro. Simmons, saying he thinks he will need some more men with him very soon, and requesting the addresses of several to keep on hand.

Bro. Neal, our President, had a visit from Bro. Wissinger, of No. 27, of Baltimore.

Our friend, Prof. Snyder, of the High School, who called on us last winter and gave us a few kindly words, and who tried to form a night class at the High School for the technical instruction of men in our trade, has succeeded in getting up the class and after struggling with the "powers that be," the school was opened for such a class, but some one else was appointed as in-

structor. Now we, who worked with the professor for the night school, seeing how he was treated after his efforts in our behalf, have stood by him and refused to attend the school and think of forming one for ourselves and paying the professor to teach us, as we feel he is capable of doing. At the next election we will remember who fooled us and turned us down.

F. ASHDALE, *Press Secretary.*

ROCHESTER, N. Y.

Editor Electrical Worker:

It has been some time since you have heard from Rochester, and I suppose you must think we are quiet, but on the contrary we have been busy initiating new members, having added about sixty to Local No. 44 in the last two months, and I think we will have every man who works at the electrical business before long.

We gave a grand ball on January 16th, and had the finest electrical display ever seen in the city. There were about five hundred couple present, and it was a success financially.

Work is dull in Rochester, and as I think it will be dull for some time to come, I would advise no brother to come to Rochester to look for work at present.

Local No. 44 must acknowledge that it had a badge made in Buffalo for one of our brothers, and it was an elegant piece of workmanship, taking into consideration where it was made, but I would like to know if the brothers of Buffalo know how to play ball, for when Local No. 44 of Rochester was pitted against Buffalo's Local last summer, why Buffalo was simply not in it, for we beat them with hands down, but if they keep on practicing they might be able to beat a lot of school boys some day.

We hope that the rest of the Locals through the country are pushing the good work along and increasing their membership, and it is only a question of a little time, before we will have one of the strongest, noblest and best orders in existence.

I would like to know where there is any work. I think it would be a good thing if the Press Secretary would mention it, for it would help many a brother to get a day's work, for work might be slack in one place, and in another place, fifty or a hundred miles away, there might be lots of work.

JACOB L. GUERINOT, *Press Secretary.*

BUFFALO, N. Y.

Editor Electrical Worker:

Business in this locality is rather slack at present, owing to most of the new buildings having been completed and the summer gang of the different telegraph and telephone companies not being ready to start out, but there are indications that the summer will be a busy one for electrical workers. Now here I would not advise any electrical worker having a good job to come this way, on account of the Niagara Falls power being transmitted to this city. While contract has been let to build the

pole line for the wires, it may be a year or more before the wires are strung and current sent over them.

The Postal is to make some changes in their branch offices, owing to their present quarters being demolished and new buildings erected on the old sites.

The Western Union will move into their new quarters in the Ellicott Square Building on May 1st, and it is said that it is the finest in the land. This change will be welcome by every Western Union employee, as their present quarters are cramped and in every way unsuitable to the company's needs.

The widow of our late Bro. Michael Dwyer, who sued the General Electric Co. for \$10,000, has been awarded \$6,000 judgment by the jury. Mention of this suit was made in my last letter. The boys of No. 45 took up the case with a vim and furnished witnesses whose testimony was the means of bringing about this handsome sum.

The City Council has voted the Police Department \$10,000 to make changes in their present system. This will include dynamos, storage batteries, etc., and may add several of our workers to the police rolls. It also increases linemen's salaries from \$700 to \$900 per year.

I will endeavor to find more news for my next. W. H. KELLY, *Press Secretary*.

LOS ANGELES, CAL.

Editor Electrical Worker:

The old adage, "Better late than never," inspires me to send you this communication, trusting that it may reach you in time for insertion in the next issue. The March number of the WORKER was a good one. It is improving wonderfully of late. The press secretaries are beginning to realize that their services are needed and are responding nobly. Let me remind you, brothers, that it is not necessary to be elected to that office to contribute an article to the WORKER. Ofttimes there are many members in the Local who are better qualified for the position of Press Secretary than the brother who has been selected to fill it. I know this to be so in Local No. 61, so if you have anything to offer for the good of the order, write it, and the editor of this paper will gladly publish it.

Indications are that No. 61 is about to lose two of its oldest and best members. Our honored President, A. McFarlane, who by long association and his noble manhood has endeared himself to all, announces his departure for Chicago about May 1st. Our Recording Secretary, F. E. Peters, has severed his connection with the Sunset Telephone Co., where he has been employed during the past six years, and will accompany Bro. McFarlane. They carry with them the best wishes of every member of No. 61. I am requested to say to our Eastern brothers: Grasp them by the hand and be assured that they have been tried and found not wanting. We heartily re-

commend them to your fraternal care and protection.

Bro. C. M. Little, of No. 6, having spent a few weeks in this city, has departed for Denver, Colo. The Press Secretary of No. 6 recommended him very highly in his last letter to the WORKER, and until very recently we had no reason to believe that he was undeserving. Bro. Little spent some time in this city about one year ago, during which time he contracted a bill for board which he failed to pay. This was unknown to us until he returned to the city and repeated the dose. The fact that a man fails to pay his board I do not consider an unpardonable sin, but when a man in addition to this will tell many falsehoods to gain an opportunity to sneak out of town, he brings discredit upon the Brotherhood and should be published for its protection. I do this at the request of many members of No. 61.

The electric road to Santa Monica opened for business April 2d. This makes a continuous line from the ocean to the summit of Mt. Lowe, a distance of thirty miles.

I do not wish to mention the various electrical projects that are being talked about from day to day, and month to month, but should anything tangible result from it, I shall be pleased to communicate it. W. A. WOODIS, *Press Secretary*.

LITTLE ROCK, ARK.

Editor Electrical Worker:

After some time of silence I will try and write the WORKER a few lines in regards to our Union No. 68. We are all getting along very nicely at present. There is a good lot of work going on here yet. Some of our brothers have been working at Pine Bluff for the past few months, but work has ceased there now.

Bro. Will Bingham has quit the old telephone company and gone with the Western Union people. I wish to say we wish him success in his new position. Bro. Bingham is a very good fellow when he is asleep; I don't think.

We have had very good luck in our Union in regards to sickness. Bro. Chas. Elmore has been under the weather for the past ten days, but is improving very nicely at present.

We are not getting many members now since the initiation fee has been raised to \$5.00, but are in hopes that we may get all the electrical workers in our Union before the year is gone.

Some of our brothers seem to be mighty careless about attending the meetings. Brothers, if you do not intend to come to the meeting, why not take out a withdrawal card and quit honorably and not be suspended for non-payment of dues. I don't see what in the world you are thinking about when you act in this manner. Why, it is a shame on you and the Union to do this way.

Our good brother, A. H. Bingham, was tired of the life of a bachelor, so he got

him a bride. He is nothing more than a benedict now. Well, Bro. Art, we all wish you and your loved one a long and happy life, and may you get plenty of this world's goods before it is too late.

WILL DROGOON, *Press Secretary*.

QUINCY, ILL.

Editor Electrical Worker:

Allow me to introduce myself as the new Press Secretary of Local Union No. 67. Bro. Perkins resigned a short time ago on account of other business, but nevertheless he is a staunch supporter of the Union. I was elected to his office at our last regular meeting.

Everything is working smoothly and the telephone company is beginning to put on their finishing touches here. The work of rebuilding this city will soon be completed and it is a piece of work that all the electrical workers of Quincy should appreciate.

There has been such a fever of excitement in Quincy about base-ball of late that the telephone linemen challenged the electric light men for a game to be played in the ball park of this city, Sunday, May 10th, and they are sure of victory.

We did not have any meeting at our last regular meeting night, as the big Wallace show was in town and our electric light brothers wanted to go and see the big white elephant, so we had to postpone the meeting for one week. Our circuit has same number of lights, but at our next meeting we expect to cut in one more.

I will close for this time, and will promise that No. 67 will be heard from oftener in the future than it has been in the past.

EDW. FLAHERTY, *Press Secretary*.

SPOKANE, WASH.

Editor Electrical Worker:

Another new light added to our circuit last meeting, H. E. Truax, of Warden, Idaho. He is running the city plant at that place. Bro. Causey has gone to Butte, Mont. He will talk Union to those lightning chasers over there.

Bro. Denter has his old crew back again. He will take the whole gang down to Cheney next week.

Our honorable President, Bro. R. F. Harper, was united in marriage with one of Spokane's beautiful and charming little ladies, Tuesday, April 7th. The happy couple are at home in this city to their numerous friends. The groom has charge of the armature and transformer repair work for the Edison Electric Illuminating Co. and Spokane Street Railway Co. He has been in the employ of these companies for the past four years, is trustworthy and efficient. He has a host of friends here who wish him success and happiness in his new venture.

I would rather do almost anything than write these letters. If I do not get killed before my term expires I will be in luck. I have step-ladders, hand-axes, and all such stuff thrown at me every time the paper comes out. I have a standing invi-

tation to visit St. Louis and be mobbed by the ladies.

Bro. Bedore, of No. 17, called me an Indian and displayed his ignorance again. McGuire is the only Indian around here, and we have lots of American girls out here, and would like to see them organize by themselves, but you cannot make me believe that men and women can get along in the same Union.

C. C. VAN INWEGEN, *Press Secretary.*

TROUBLE.

SPOKANE, WASH., April 27, 1896.

J. T. Kelly, *St. Louis, Mo.:*
Strike on in Spokane. All electrical workers out. Letter sent.

R. F. HARPER, *President No. 73.*

The letter which has just been received states that the trouble was caused on account of working overtime at regular wages. Some time ago a committee of the Union waited upon D. L. Huntington, General Manager of the Washington Water Power Co., and asked pay-and-a-half for overtime, which was granted. The armature winders were shortly afterwards transferred to the street railway department, and were asked to work overtime and Sundays at straight time. (The Washington Water Power Co. owns the Edison Electric Illuminating Co., the Spokane Street Railway and several other concerns, so that it is practically all the same company no matter which department a man works in.) Bros. Harper and Benson, who were the armature winders transferred, refused to work unless time-and-a-half was paid for overtime and Sundays. A committee of the Union called on Mr. Huntington, and reminded him of the agreement with the Union. He stated that that only applied to the electric light men and that when men were transferred to the street railway department they would have to work Sundays and overtime at straight time. No agreement could be reached as the company refused to arbitrate, and all the men quit work at six o'clock Monday evening, as stated in the telegram. The Union was unanimous on the question. The Trades Council has also voted to sustain the Union in the stand taken, so the fight is on. (As we were going to press when this information was received, we cannot publish this month a full account of the case.)

MILWAUKEE, WIS., May 3, 1896, 11 P. M.
J. T. Kelly, *St. Louis, Mo.:*

Come immediately or send a good man. Answer.

M. J. QUIRK, *President No. 2.*

MILWAUKEE, WIS., May 4, 1896, 9:45 A. M.
J. T. Kelly, *St. Louis, Mo.:*

Can win this strike if electrical men will assist.

W. D. MAHON, *President A. A. St. Ry. E.*

MILWAUKEE, WIS., May 4, 1896, 10:15 A. M.
J. T. Kelly, *St. Louis, Mo.:*

Situation serious. Are you coming? Answer.

G. POEHLMAN, *Fin. Sec'y No. 2.*

ST. LOUIS, MO., May 4, 1896.

M. J. Quirk, *Milwaukee, Wis.:*

In Milwaukee Tuesday morning. Telegram just delivered. No train sooner.

J. T. Kelly, *Grand Secretary.*

On April 11th, plans and specifications were filed with the Board of Public Works in the city of Buffalo, for the trunk line distribution in that city of Niagara power under the franchise accepted by the Niagara Falls Power Co., Jan. 14th, 1896. The lines from Tonawanda to Buffalo will be over canal lines.

We have received from the Coming Nation Press, Tennessee City, Tenn., a copy of "Direct Legislation" by J. W. Sullivan. This book was first published about four years ago and immediately took rank with the best reform literature of the day. The present is the third edition of 18,000 copies and is sold for the small sum of 10 cents. All who have not yet read "Direct Legislation" should avail themselves of the opportunity of securing so valuable a work at such a low price.

W. B. PRESCOTT, President of the International Typographical Union, has issued 250,000 dodgers calling attention to the label of his organization, and asks that all who have printing done demand that the label be used and to request merchants and others to have the union label on their stationery, and also to see that it is on papers, books and magazines purchased. Mr. Prescott also calls attention to the agitation the Typographical Union is making in favor of Government ownership of the telegraph, and requests all labor organizations to join with the printers in petitioning senators and representatives in Congress to enact such legislation as will place the telegraph in control of the Government as part of the postal system.

ARRANGEMENTS have been made with the Postal Telegraph Co. by which the machinery of the electrical exposition in New York will be started by pressing a button which closes a loop taking in the whole continent. The Postal company has been equipping its lines with heavy copper wire and believes it can illustrate rapidity of working by the instantaneity of its transmission on May 4th when the mere pressure of the key will flash the signal to the Golden Gate and back to the exposition building in the twinkling of an eye over 6,000 miles of wire.

POWER from the great dynamos of the Niagara Power Co. will be transmitted to New York City, over 412 miles of wire, on May 5th, at the opening of the National Electric Exposition and meeting of the National Electric Light Association. The wires for transmission will be furnished by the Western Union Co. on one of its heaviest cables. The longest distance that electric power has ever been carried is 110 miles, and that in Europe. The current will not be a heavy one, but will demonstrate that by Nicola Tesla's new system it can be conveyed almost any distance. It will be the first practical test of the system and its projectors seem to fear no failure. Gov. Morton will switch on the current which will run a model of the Niagara company's plant in New York and also the cable canal system of towing. The Bell Telephone Co. will have a telephone system transmitting the roar of the Falls.

Subscribe for the ELECTRICAL WORKER.

The X Ray in San Francisco.

[An experiment overlooked by the Press Secretary of No. 6.]

The entire talent of Bernal Heights was recently invited to an entertainment given in honor of the coming of age of Terrence Flannigan's daughter. Nothing was left undone that could be devised to make every one feel at home and happy. The Misses McManus, who have more than a locality reputation as vocalists, were present, but the star of the evening was Prof. McNally, who had been making some experiments with the cathode ray. The Professor had brought his apparatus with him and a feast of reason was anticipated.

Phil Burns' billy goat was tethered in the back yard, and occasionally the horns could be heard as it tried to pry clapboards off the back of the house.

About 11 o'clock Mr. Terrence Flannigan called for attention and announced that Prof. McNally would now give an exhibition connected with his latest discoveries in the field of science. Mr. Philly Burns had consented that some experiment should be tried with his goat.

The announcement caused a hum of general approval, and after a few preliminaries the goat was led in. In order to keep the animal quiet, Prof. McNally said it would be necessary to administer an anesthetic. This was done and the goat became at once a fit subject for investigation.

It is not in the memory of man that a social gathering at Bernal Heights was ever so electrified before.

"Fore heaven," said McNally, as the interior of the goat began to be revealed.

"Mother of Moses," murmured Miss Flannigan.

Distributed throughout the goat's anatomy were a watch and chain, a tooth brush, a razor half opened, a corkscrew, a child's shoe, one undigested raw turnip, a small pewter mug, a soft rubber ball and a wooden peg.

"Get out a search warrant," demanded Mr. Casey, who had lost the watch and chain.

"Dissect the crayther," lisped Miss McManus.

Mr. Philly Burns pushed the crowd aside and took up the goat to carry it out. A small riot took place, and when it was over the goat was found to be dead. Mr. Philly Burns now threatens a suit for damages against Prof. McNally for killing the goat with anesthetics, but McNally smiles skeptically and says that the articles revealed by his Roentgen ray experiment were enough to have caused Billy's death eventually. Mr. Flannigan is blamed for turning a coming-of-age party into a scientific expose. In fact, the chilliness caused by the affair has settled like a frost over Bernal Heights.—*San Francisco Examiner.*

Patent Record.

The following recent electrical patents are reported by Longan, Higdon & Higdon, patent lawyers, second floor Odd Fellows' Building, St. Louis, and 48 Pacific Building, Washington, D.C.:

No. 557,749. Automatic Electric Railway Signal—Wm. W. Alexander, Kansas City Mo. The combination of a power train of wheels, operating simultaneously a semaphore and a message-transmitting device, a set of trigger-levers, an electromagnet controlling said levers, and an escapement device for retarding the power train.

No. 556,788—Operating Dynamo Electric Machines in Multiple—Edmond Verstraete, St. Louis Mo. The combination with a generator having series field coils and field coils in shunt relation to the armature of another generator supplying the same circuit in multiple having a set of shunt field coils energized by current taken from opposite sides of the armature of the first-generator.

No. 556,946—Electric Signal Lamp—Alexander F. Ward, Memphis, Tenn. A signal device comprising a dynamo, a hand-driven mechanism therefor, and an inclosing protective casing in combination with a folding mast carried by said dynamo-casing, and a signal lamp at the upper end of said mast.

Directory of Local Unions.

(Secretaries will please furnish the necessary information to make this directory complete. Note that the time and place of meeting, the name of the President, the names and addresses of the Recording and Financial Secretaries are required.)

No. 1, St. Louis, Mo.—Meets every Tuesday at S. E. cor. 21st and Franklin avenues. Chas. De May, Pres., 440 Easton Ave.; W. S. Fick, R. S., 317 Wells ave.; Jas. J. Gallagher, S. S., 242 Hickson st.

No. 2, Milwaukee, Wis.—Meets 2d and 4th Wednesdays at Bauer's Hall, 304 W. Water st. W. J. Quirk, Pres., 37 22d st.; R. F. Marquardt, R. S., 59 17th st.; Geo. Hochman, F. S., 460 21st st.

No. 3, Denver, Col.—F. L. Layne, Pres., 1011 19th st.; Geo. P. Manning, Sec'y, 141 Lawrence st.

No. 4, New Orleans, La.—Meets 1st and 3d Tuesdays at Carondelet-Theriot st. J. McGregor, Pres., 2111 Rousseau st.; C. M. Hale, R. S., 63 St. Mary st.; R. B. Joyce, F. S., 311 S. Basine st.

No. 5, New York City, N. Y.—Meets every Thursday at 25 E. 4th st. John F. Bergen, Pres., 324 Henry st., Brooklyn; C. H. Middleton, R. S., 45 Clinton Place; New York City; M. E. Bergen, F. S., 515 Henry st., Brooklyn.

No. 6, San Francisco, Cal.—Meets 2nd and 4th Wednesdays at Forester's Hall, 30 Eddy st. E. Rush, Pres., room 3229; 6th st.; Geo. W. Frost, R. S., 622 1/2 Natoma st.; W. N. Manning, F. S., R. 12, 109 5th st.

No. 7, Springfield, Mass.—Meets first and third Mondays at room 20, new Theatre Block. J. P. Malone, Pres., 22 High st.; Elvoker, H. B. Rust, R. S., Hotel Gilmore, P. O. Fitzpatrick, F. S., 21 Taylor st.

No. 8, Toledo, O.—Meets every Tuesday at Friendship Hall, cor. Jefferson and Summit sts. J. E. Rborough, Pres., care of C. E. Bell Co.; Wm. Callahan, R. S., 910 Vinton st.; J. W. Bramm, F. S., 225 1/2 June st.

No. 9, Chicago, Ill.—Meets every Saturday at 184 E. Madison st. W. F. Harter, Pres., 329 W. Harrison st.; W. M. Stockwell, R. S., 184 Madison st.; H. Knapp, F. S., 67 Edison avenue.

No. 10, Indianapolis, Ind.—Meets 1st and 3rd Monday at 204 W. Pearl st. C. A. Hayes, Pres., 46 College ave.; W. O. Dudley, R. S., 274 E. Ohio st.; J. L. Ellis, F. S., 34 Union st.

No. 11, Terre Haute, Ind.—Meets 2d and 4th Tuesdays at 8th and Main sts. C. D. Updegraff, Pres., 329 S. Ninth st.; M. Davis, R. S., 728 N. 9th st.; W. H. Schaffer, F. S., 114 N. 14th.

No. 12, Evansville, Ind.—Meets every Tuesday at cor. 3rd and Sycamore sts. Harry Fisher, Pres., 300 Clark st.; A. L. Swanson, R. S., 154 Water st.; A. N. Grant, F. S., 202 Clark st.

No. 14, Memphis, Tenn.—Chas. E. Blake, Pres., 70 Mulberry st.; R. A. Myles, Sec'y, 207 De Soto st.

No. 15, Philadelphia, Pa.—Meets every Tuesday at 711 Spring Garden st. W. D. Smith, Pres., 254 Chester st.; E. G. Boyle, R. S., 719 Hotel; H. C. Rawlinson, F. S., 254 Chester st.

No. 16, Lynn, Mass.—Meets at General Electric Band Room, 95 South st. Jas. Robson, Pres., 46 W. Neptune st.; C. W. Perkins, R. S., 6 Allen's Court; E. J. Malloy, F. S., 36 Cottage st.

No. 17, Detroit, Mich.—Meets first and third Thursdays at Trades Council Hall, 221 Randolph st. Jas. Runkle, Pres., 229 East St. F. Campbell, R. S., 45 Abbott st.; J. O. Forbes, F. S., 745 Milwaukee ave. W.

No. 18, Kansas City, Mo.—Meets every Friday at 1015 Walnut st. W. L. Hutchison, Pres., 1242 Broadway; D. C. Sprecher, R. S., 1205 McGee; J. H. Lynn, F. S., 1032 Summit.

No. 19, Chicago, Ill.—Meets every Tuesday at 184 E. Madison st. F. Cooklin, Pres., 892 Erie ave.; T. J. Prendergast, R. S., 2275 S. Chicago ave.; J. Drouin, F. S., 9132 S. Chicago ave.

No. 20, Chicago, Ill.—Walter Beile, Sec., 126 W. Fry st.

No. 21, Wheeling, W. Va.—Meets first and third Tuesdays at Lumber Assembly Hall. H. F. Wyse, Pres., Box 111; C. L. Elvery, R. S., Box 111; W. J. Clark, F. S., McClure House.

No. 22, Omaha, Neb.—Meets every Friday in The Labor Temple. J. S. Tobias, Pres., 1615 Dorcas st.; R. Kincaid, R. S., 221 N. 16th st.; J. W. Waters, F. S., 2211 Pierce st.

No. 23, St. Paul, Minn.—Meets second and fourth Fridays at Labor Hall, 3rd and Wabasha sts. Jno. O'Donnell, Pres., 4th & Wabasha sts.; Thos. O'Toole, R. S., 333 E. 6th st.; F. Volk, F. S., 166 W. 9th st.

No. 24, Minneapolis, Minn.—Meets 1st and 3rd Wednesdays at 34 and 36 1/2 st. S. Geo. Heilig, Pres., 18 9th st.; L. R. Stevens, R. S., 18 Western ave.; A. Aune, F. S., 3129 Longfellow.

No. 25, Duluth, Minn.—Meets 2d and 4th Thursdays at Room 6 Banning Bldg. R. Thayer, Pres., 25th and W. & 1st st.; F. A. Schutte, R. S., Room 18 Norris Block; L. P. Runkle, F. S., Room 17 Norris Block.

No. 26, Washington, D. C.—Meets every Friday at 827 7th st. N. W. G. A. Malone, Pres., 481 St. N. W.; M. O. Spring, R. S., 815 11th st. N. W.; R. F. Metzler, F. S., 509 11th st. N. W.

No. 27, Baltimore, Md.—Meets every Monday at Hall, cor. Fayette and Park aves. P. H. Wissinger, Pres., 57 W. Fayette st.; J. P. Jones, R. S., 1401 W. Franklin st.; F. H. Russell, F. S., 1408 Asquith st.

No. 28, Louisville, Ky.—Meets first and third Tuesdays at Beck Hall, 1st near Jefferson st. Calvin Beach, Pres., 1020 W. Market st.; Ed. Herpt, R. S., 607 Magnolia st.; Jno. C. Deibel, F. S., 418 Fifteenth st.

No. 29, Atlanta, Ga.—Meets every Sunday at 61 1/2 Alabama st. Geo. Foster, Pres., 100 Walker st.; D. J. Kerr, R. S., 114 Richardson st.; Geo. Rayner, F. S., 121 Rhodes st.

No. 30, Cincinnati, O.—Meets 1st and 3d Mondays at 136 E. Court st. W. Williams, Pres., 605 Broadway; H. C. Gearich, R. S., 40 E. 3rd st.; J. F. Haruuth, F. S., 2158 Vernon st.—Clifton Heights.

No. 31, Jersey City, N. J.—Meets 2nd and 4th Thursdays at E. Newark ave. Thos. Watson, Pres., 113 Jersey ave.; F. R. Anderson, R. S., 21 Sussex st.; T. L. Jones, F. S., 36 Wayne st.

No. 32, Paterson, N. J.—Meets 1st and 3rd Mondays at German Union Hall, J. F. Colvin, Pres., 943 Madison ave.; Jos. Maher, R. S., 348 Grand st.; Paterson Heights, Paterson, N. J.; John Kane, F. S., 274 Hamilton ave.

No. 33, Newark, N. J.—Meets every Monday evening at No. 9 Williams st. W. J. Cortis, Pres., 12 Beach street; J. M. Eder, R. S., 180 Market st.; W. E. Rosetter, F. S., 175 Sherman ave.

No. 34, Brooklyn, N. Y.—Meets 2d and 4th Fridays at Paterson Hall, 30 Fulton st. E. W. Latham, Pres., 151 Gates ave.; C. E. Collins, R. S., 81 St. Mark's pl.; C. C. Paine, F. S., 151 Gates ave.

No. 35, Boston, Mass.—Meets 1st and 3rd Wednesdays at Well's Memorial Hall, 97 Washington st. M. Birmingham, President, 64 Dunstn st., Allston; E. Colvin, R. S., 26 Lexington st., Waltham; J. Bateman, F. S., 2 Pine Place

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No. 36, Sacramento, Cal.—Walter Ross, Pres., 1030 C st.; R. A. Fisk, R. S., 1524 3rd st.; Wm. Latine, F. S., 403 K street.

No. 37, Hartford, Conn.—Meets first and third Fridays at Central Union Labor Hall, 11 Central Row. M. F. Owens, Pres., 63 Hawthorne st.; D. F. Cronin, R. S., 49 Windsor st.; C. E. Byrne, F. S., 16 John st.

No. 38, Cleveland, O.—Meets every Thursday at Room 10, 158 Superior st. W. Cunningham, Pres., 409 1/2 Ontario st.; F. C. Locke, R. S., 1637 Cedar av.; H. T. Race, F. S., 137 Marvin ave.

No. 39, Providence, R. I.—Meets 1st and 3rd Mondays at Phoenix Bldg, 157 Westminster st. H. B. Kelly, Pres., 1930 Westminster st.; M. L. Carder, R. S., 40 Wilson st.; C. D. Higgins, F. S., 8 Carpenter st.

No. 40, St. Joseph, Mo.—Meets every Monday at northwest corner 8th and Locust sts. "Brookman's Hall." R. M. Martin, Pres., 1502 N. 34 st.; Wm. Dorset, Rec. Sec., 1708 Calhoun st.; J. C. Schneider, Fin. Sec., 809 S. 5th st.

No. 41, Philadelphia, Pa.—Meets every Thursday at N. 12 Cor. 8th and Callowhill sts. Geo. A. Neul, Pres., 3625 Wharton st.; C. W. Elliott, R. S., 1721 Stillman st.; W. C. Fisher, F. S., 284 Park ave.

No. 42, Utica, N. Y.—Meets second and fourth Tuesdays at Room No. 5, Western Union Building. L. S. Ward, President, Room 5, Western Union Building; E. S. Allen, Recording Secretary, Room 5, Western Union Building; C. Richardson, F. S., Room 5, Western Union Building.

No. 43, Dayton, O.—J. J. McCarty, Pres., care of 5th st. R. R. Co.; L. O. Williams, R. S., 1135 W. 3d st.; F. DeWitt, F. S., 420 E. 2d st.

No. 44, Rochester, N. Y.—T. J. Keenan, Pres., 76 Oak st. John Riley, R. S., 398 Plymouth ave.; J. B. Thistle, F. S., 90 Prospect st.

No. 45, Buffalo, N. Y.—Meets 1st and 3rd Saturdays at 512 Washington st. Wm. Haley, Pres., 262 Pearl st.; G. E. Judson, R. S., 10 E. Eagle st.; H. L. Mack, F. S., 867 Washington st.

No. 46, Reading, Pa.—Lucian Bowman, President; Harry Weidner, Recording Secretary, 225 Pearl street; W. S. Hoffman, Financial Secretary, 109 Peach street.

No. 47, Boston, Mass.—Meets every 2nd & 4th Thursday at 967 Washington st. E. C. McCarthy, Pres., 192 Eustis st.; Roxbury; A. E. Gibbons, R. S., 82 Bartlett st., Charlestown; W. H. Nichols, F. S., Pleasant st., Roxbury.

No. 48, Sedalia, Mo.—Meets every Thursday at Second and Ohio streets. C. E. Jackson, President; C. C. Ballard, Recording Secretary, 228 Vermont avenue; Ed. McCoy, Financial Secretary, 1210 E. Eleventh street.

No. 49, Bloomington, Ill.—Meets 1st and 3d Wednesdays at Trades Assembly Hall. C. F. Snyder, Pres., Box 1015; W. C. Gorey, R. S., 409 S. Madison st.; W. F. Witty, F. S., 421 N. Madison st.

No. 50, Birmingham, Ala.—Meets first and third Fridays at 301 2nd ave. C. L. Montgomery, Pres., 620 18th st.; T. A. Thompson, R. S., 2120 10th ave.; P. P. Beatty, F. S., 311 20th street.

No. 51, Scranton, Pa.—Jas. Harding, Pres., 601 Meridian st.; P. Campbell, R. S., 1210 Irving ave.; Ruben Robins, F. S., 1221 Hampton st.

No. 52, Wilkes-Barre, Pa.—W. B. Coe, President, 141 N. River street; W. F. Barber, Recording Secretary, 415 Wyoming avenue, W. Pittston, Pa.; B. M. Lewis, Financial Secretary, American Tel. and Tel. Company.

No. 53, Harrisburg, Pa.—John Moyer, Pres., Balm and Ralams sts.; Jas. Emminger, R. S., 25 N. 15th st.; C. Anderson, F. S., 40 Summit st.

No. 54, Peoria, Ill.—Meets 1st & 3rd Wednesdays at 301 Main st. H. Schearer, Pres., 219 W. Jefferson st.; Harry Dunn, Rec. Sec., East Peoria; L. C. Crawley, Fin. Sec., 115 Washington st.

No. 55, Des Moines, Ia.—Meets first and third Tuesdays at Trades Assembly Hall. L. M. Steadman, President, 114 E. Thirteenth street; Ed. Purcell, Recording Secretary, 1020 E. Sixth street; J. C. Dautremont, Financial Secretary, 316 E. Seventh street.

No. 56, Boston, Mass.—Meets 2nd and 4th Wednesdays at 45 Elliott st. J. Murphy, Pres., 363 Tremont st.; D. J. Burnett, R. S., 9 Silver St., Boston; J. H. DeCoursey, F. S., 79 Smith st., Roxbury.

No. 57, Salt Lake City, Utah.—Meets second and fourth Thursdays. F. Smith, Pres., care Citizens Electric Lt. Co.; J. A. Ackley, R. S., care R. M. Jones; E. Mill, F. S., 67 Main st.

No. 58, West Superior, Wis.—Meets first and third Wednesdays at rooms 3 and 4 1602 3d st. R. F. Pfeiffer, Pres., Superior Water, Light & Power Co.; G. C. Hehl, R. S., 405 Hughitt ave.; H. Burdette, F. S., 1819 Banks ave.

No. 59, Paducah, Ky.—J. B. Eretts, Pres., No. 2 Engine House; W. S. Nelson, R. S., 220 S. 4th st.; W. A. Koenenman, F. S., 220 S. 4th st.

No. 60, San Antonio, Tex.—Meets every Saturday at Milham Hall, Soledad Block. W. J. Parsons, Pres., 313 N. Laredo st.; T. L. Rose, R. S., 215 Powder House st.; J. H. Maloney, F. S., 723 Morales st.

No. 61, Los Angeles, Cal.—A. McFarlane, Pres., 215 S. Hill st.; F. E. Peters, R. S., 412 Billerue ave.; C. P. Loft-house, F. S., 746 San Julian st.

No. 62, Kalamazoo, Mich.—A. D. Ayres, Pres., 534 S. Burdick st.; L. Bellman, R. S., 540 Pine st.; Wm. Hasenack, F. S., 132 W. Cedar st.

No. 63, Tampa, Fla.—Theo. Gilian, President, Ft. Tampa City; W. F. Crofts, Recording Secretary, Lock Box 264; Arthur D. Henry, Financial Secretary, Box 220.

No. 66, Houston, Tex.—Meets first Thursdays and third Sundays. J. W. Howard, Pres., 1713 Houston ave.; S. T. Sikes, R. S., 808 McKee st.; F. A. Peters, F. S., care of Peters Messenger Service.

No. 67, Quincy, Ill.—D. M. Mallinson, P., 1120 Vine st.; Edw. Haise, R. S., 701 Main st.; W. F. Wagner, F. S., 1141 Chestnut st.

No. 68, Little Rock, Ark.—C. J. Griffith, Pres., 15th and Rooker st.; C. W. Wilson, R. S., 826 Marshall st.

No. 69, Richmond, Va.—Meets 1st & 4th Wednesdays at 611 N. Third st. (in rear). E. Vangben, Pres., 906 N. Seventh st.; J. A. Moss, R. S., 419 W. Duval st.; S. R. Kelly, F. S., 615 N. 3rd st.

No. 70, Schenectady, N. Y.—Meets 2d and 4th Tuesdays at Trades Assembly Hall, cor. Centre and State sts., 3d floor. Wm. Birch, Pres., 1030 State st.; J. Engel, R. S., 114 Barrett st.; J. D. Betting, F. S., 626 Villa road.

No. 71, Galveston, Tex.—Meets 2nd and 4th Wednesdays. Oliver Lorenz, Pres., 1906 Tremont st.; D. L. Gobie, R. S., 3330 Ave. W.; L. C. Castetter, F. S., 2222 Post-office st.

No. 72, Danville, Ill.—C. M. Gilton, Pres., 319 Franklin st. Jas. Merritt, Sec., care of Am. Tel. & Tel. Co.

No. 73, Spokane, Wash.—Meets 1st and 3rd Thursdays at Oliver Hall, 136 1/2 Riverside ave. R. F. Harper, Pres., 906 Broadway; T. H. Deater, R. S., Box 635; W. D. Nickson, F. S., Box 635.

No. 74, Fall River, Mass.—Meets every Monday at cor. Main and Bedford sts. A. F. Swan, Pres., Sec. C. Granite Block; H. Sweeney, Rec. Sec., 1164 Plymouth ave.; Wm. Jellison, F. S., 108 Secl st.

No. 75, Wichita, Kan.—Ed. Smith, Pres.; Roy B. Cochran, Rec. Sec., care of Tel. Office.

No. 76, Tacoma, Wash.—A. A. Harrigan, Pres., 2504 J st.; C. A. Preston, R. S., 1311 K st.; Jas. Murray, F. S., 1535 C st.

No. 77, Detroit, Mich.—Meets every Friday evening at 133 Bates st. F. C. Soop, Pres., 330 Bagg st.; W. J. Hartwig, Rec. Sec., 291 22nd st.; Archie Miller, Fin. Sec., 254 Randolph st.

No. 78, Saginaw, Mich.—R. Crawford, Pres., 145 Gage st.; E. S. John Strachan, R. S., 336 N. 2d st.; Chas. Ross, F. S., P. O. Box 225, E. S.

No. 79, Austin, Tex.—Meets every Thursday night at Maccabee Hall. M. A. Spurgeon, Pres., Trinity House; G. W. McClanahan, R. S., 506 W. 10th street; R. G. Briant, F. S., Trinity House.

No. 80, Newport, R. I.—Meets every Monday at the foot of Pelham street. G. B. Reynolds, Jr., Pres., 17 Green st.; W. Powers, R. S.; A. S. Gerice, F. S., 75 John st.

No. 81, Ft. Worth, Tex.—C. E. Moffett, Pres., 213 N. Taylor st.; R. C. Wright, Rec. Sec., 103 W. 1st st.; Martin Doscher, Fin. Sec., 103 W. 1st st.

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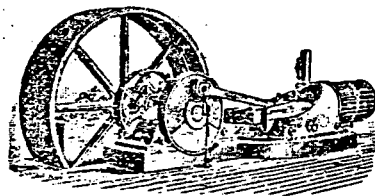
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